KM400A-MLV/MV
KM400-MLV/MV

Rev. A+
System Board
User's Manual

74600328

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Caution

To avoid damage to the system:

- Use the correct AC input voltage range.

To reduce the risk of electric shock:

- Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:

- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to the battery manufacturer's instructions.

FCC and DOC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2. Shielded interface cables must be used in order to comply with the emission limits.

Notice

This user's manual contains detailed information about the system board. If, in some cases, some information doesn't match those shown in the multilingual manual, the multilingual manual should always be regarded as the most updated version. The multilingual manual is included in the system board package.

To view the user's manual, insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. Click the "TOOLS" icon then click "Manual" on the main menu.

System Board

This user's manual is for the KM400A-MV/MLV and KM400-MV/MLV system boards. The differences between these boards are shown below.

KM400A-MV/MLV	VIA KM400A
	Up to 400MHz FSB
	Up to DDR400
	"MLV" supports onboard LAN
KM400-MV/MLV	VIA KM400
	Up to 333MHz FSB
	Up to DDR333
	"MLV" supports onboard LAN

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Chapter 1 - Introduction

1.1 Features and Specifications

1.1.1 Features

Chipset

- KM400A-MV/MLV
  - North bridge: VIA® KM400A
  - South bridge: VIA® VT8237
- KM400-MV/MLV
  - North bridge: VIA® KM400
  - South bridge: VIA® VT8237

Processor

The system board is equipped with Socket A for installing one of the following supported processors.

- AMD Athlon™ XP 266/333/400MHz FSB (KM400A-MV/MLV)
  AMD Athlon™ XP 266/333MHz FSB (KM400-MV/MLV)
- AMD Athlon™ 200/266MHz FSB

Important:
To ensure proper boot up and operation of your system, you must power-off the system then turn off the power supply's switch or unplug the AC power cord prior to replacing the CPU.

System Memory

- Two 184-pin DDR SDRAM DIMM sockets
- KM400A-MV/MLV supports up to 2GB memory using PC1600 (DDR200), PC2100 (DDR266), PC2700 (DDR333) and PC3200 (DDR400) DDR SDRAM DIMM, 2.5V type

  KM400-MV/MLV supports up to PC2700 (DDR333) only.

DIMMs	Memory Size	DIMMs	Memory Size
2MBx64	16MB	16MBx64	128MB
4MBx64	32MB	32MBx64	256MB
8MBx64	64MB	64MBx64	512MB

Expansion Slots

- 1 AGP slot
- 3 PCI slots

AGP (Accelerated Graphics Port)

AGP is an interface designed to support high performance 3D graphics cards. It utilizes a dedicated pipeline to access system memory for texturing, z-buffering and alpha blending. The universal AGP slot supports AGP 8x with up to 2.13GB/sec. bandwidth and AGP 4x with up to 1066MB/sec. bandwidth for 3D graphics applications. AGP in this system board will deliver faster and better graphics to your PC.

Onboard Graphics Features

- Integrated S3 2D/3D/Video accelerator
  - Shares 8MB to 64MB of the system memory
  - Optimized Shared Memory Architecture (SMA)
  - High quality DVD video playback
- 3D rendering features
  - 32-bit true color rendering
  - MPEG-2 video textures
- 2D hardware acceleration features
- Motion video architecture
- Software drivers
  - Windows® 98/2000/ME/XP

Onboard LAN Features (KM400A-MLV/KM400-MLV only)

- Phy fast ethernet controller
- Integrated IEEE 802.3, 10BASE-T and 100BASE-TX compatible PHY
- PCI master interface
- Full duplex support at both 10 and 100 Mbps
- Supports IEEE 802.3u auto-negotiation
- Supports wire for management

Onboard Audio Features

- Realtek 6-channel codec
- AC'97 2.2 extension compliant codec
- Supports Microsoft® DirectSound / DirectSound 3D
- AC'97 supported with full duplex, independent sample rate converter for audio recording and playback
- S/PDIF-out interface
- 6-channel audio output

S/PDIF-out

S/PDIF is a standard audio file transfer format that transfers digital audio signals to a device without having to be converted first to an analog format. This prevents the quality of the audio signal from degrading whenever it is converted to analog. S/PDIF is usually found on digital audio equipment such as a DAT machine or audio processing device. The S/PDIF connector on the system board sends surround sound and 3D audio signal outputs to amplifiers and speakers and to digital recording devices like CD recorders.

6-channel Audio

The 6-channel audio output function is supported by configuring the audio software application program.

Serial ATA

Serial ATA is a storage interface that is compliant with SATA 1.0 specification. With speed of up to 1.5Gbps, it improves hard drive performance even in data intensive environments such as audio/video, consumer electronics and entry-level servers.

- Two SATA (Serial ATA) interfaces which are compliant with SATA 1.0 specification (1.5Gbps interface)

PCI Bus Master IDE Controller

- Supports ATA/33, ATA/66, ATA/100 and ATA/133 hard drives
- UDMA Modes 3, 4, 5 and 6 Enhanced IDE (data transfer rate up to 133MB/sec.)
- Bus mastering reduces CPU utilization during disk transfer
- Supports ATAPI CD-ROM, LS-120 and ZIP

USB Ports

The system board supports USB 2.0 and USB 1.1. USB 1.1 supports 12Mb/second bandwidth while USB 2.0 supports 480Mb/second bandwidth providing a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

BIOS

- Award BIOS, Windows® 98/2000/ME/XP Plug and Play compatible
- Supports SCSI sequential boot-up
- Flash EPROM for easy BIOS upgrades
- Supports DMI 2.0 function
- 2Mbit flash memory

Desktop Management Interface (DMI)

The system board comes with a DMI 2.0 built into the BIOS. The DMI utility in the BIOS automatically records various information about your system configuration and stores these information in the DMI pool, which is a part of the system board's Plug and Play BIOS. DMI, along with the appropriately networked software, is designed to make inventory, maintenance and troubleshooting of computer systems easier. Refer to chapter 4 for instructions on using the DMI utility.

Rear Panel I/O Ports (PC 99 color-coded connectors)

- Four USB 2.0/1.1 ports
- One RJ45 LAN port (KM400A-MLV/KM400-MLV only)
- One DB-9 serial port
- One DB-15 VGA port
- One DB-25 parallel port
- One mini-DIN-6 PS/2 mouse port
- One mini-DIN-6 PS/2 keyboard port
- Three audio jacks: line-out, line-in and mic-in

I/O Connectors

- Two connectors for 4 additional external USB 2.0/1.1 ports
- One front audio connector for external line-out and mic-in jacks
- One CD-in internal audio connector
- One S/PDIF-out connector
- Two SATA connectors
- Two IDE connectors
- One floppy connector
- Two ATX power supply connectors
- CPU fan and system fan connectors

1.1.2 Intelligence

CPU Protection

- Monitors CPU temperature during system boot-up
- Supports shutdown temperature - automatic shutdown upon system overheat

Dual Function Power Button

Depending on the setting in the "Soft-Off By PWRBTN" field of the Power Management Setup, this switch will allow the system to enter the Soft-Off or Suspend mode.

Wake-On-Ring

This feature allows the system that is in the Suspend mode or Soft Power Off mode to wake-up/power-on to respond to calls coming from an external modem or respond to calls from a modem PCI card that uses the PCI PME (Power Management Event) signal to remotely wake up the PC.

Important:
If you are using a modem add-in card, the 5VSB power source of your power supply must support a minimum of ≥720mA.

Wake-On-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port or via a PCI LAN card that uses the PCI PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

Important:
The 5VSB power source of your power supply must support ≥720mA.

Wake-On-PS/2 Keyboard/Mouse

This function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system.

Important:
The 5VSB power source of your power supply must support ≥720mA.

Wake-On-USB

This function allows you to use a USB device to wake up the system.

Important:

- *If you are using the Wake-On-USB function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A.*
- *If you are using the Wake-On-USB function for 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.*

RTC Timer to Power-on the System

The RTC installed on the system board allows your system to automatically power-on on the set date and time.

AC Power Failure Recovery

When power returns after an AC power failure, you may choose to either power-on the system manually or let the system power-on automatically.

ACPI

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. Currently, only Windows® 98/2000/ME/XP supports the ACPI function allowing you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows® 98/2000/ME/XP without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.

Important:
The 5VSB power source of your power supply must support ≥1A.

Virus Protection

Most viruses today destroy data stored in hard drives. The system board is designed to protect the boot sector and partition table of your hard disk drive.

1.2 Package Checklist

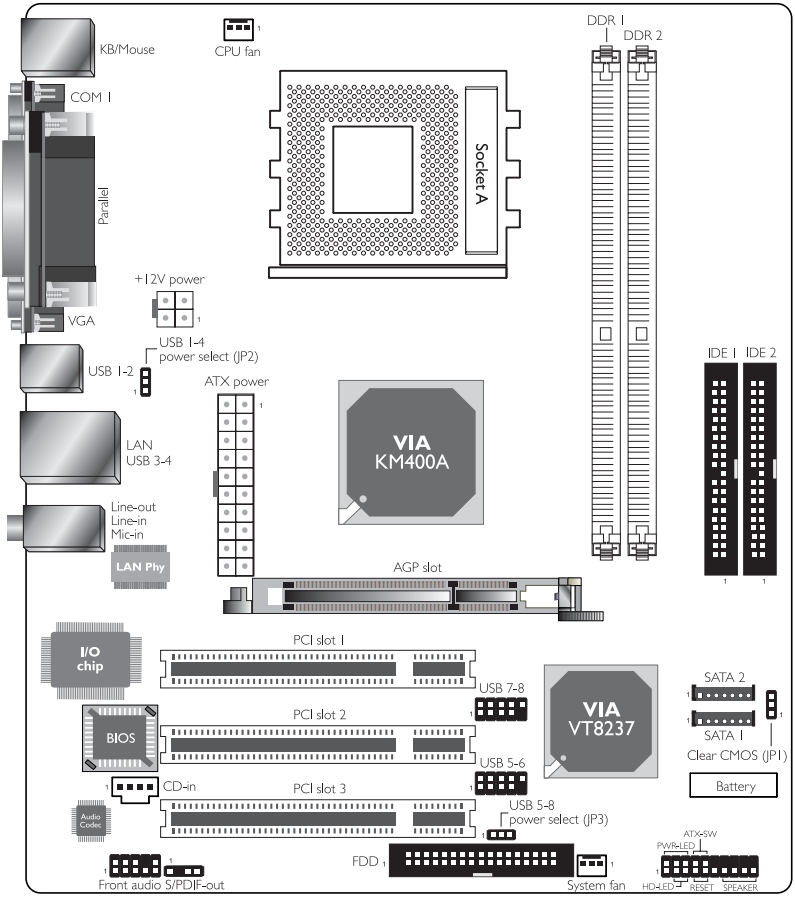
The system board package contains the following items:

- ☑ The system board
- ☑ A user's manual
- ☑ One Serial ATA cable
- ☑ One IDE cable for ATA/33/66/100/133 IDE drives
- ☑ One 34-pin floppy disk drive cable
- ☑ One I/O shield
- ☑ One "Mainboard Utility" CD

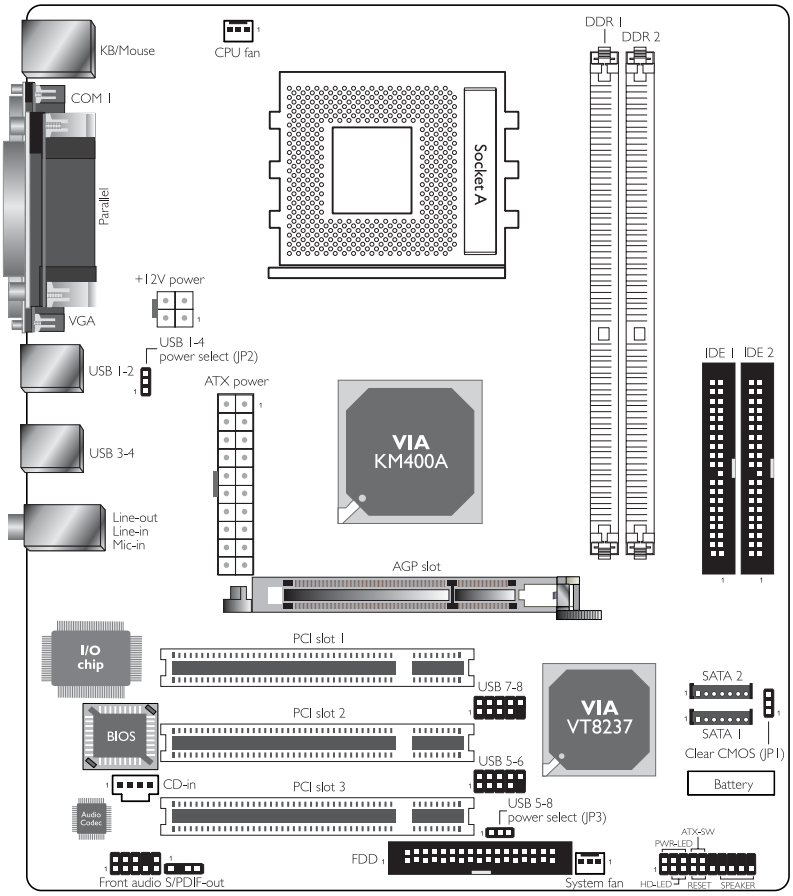
If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

Chapter 2 - Hardware Installation

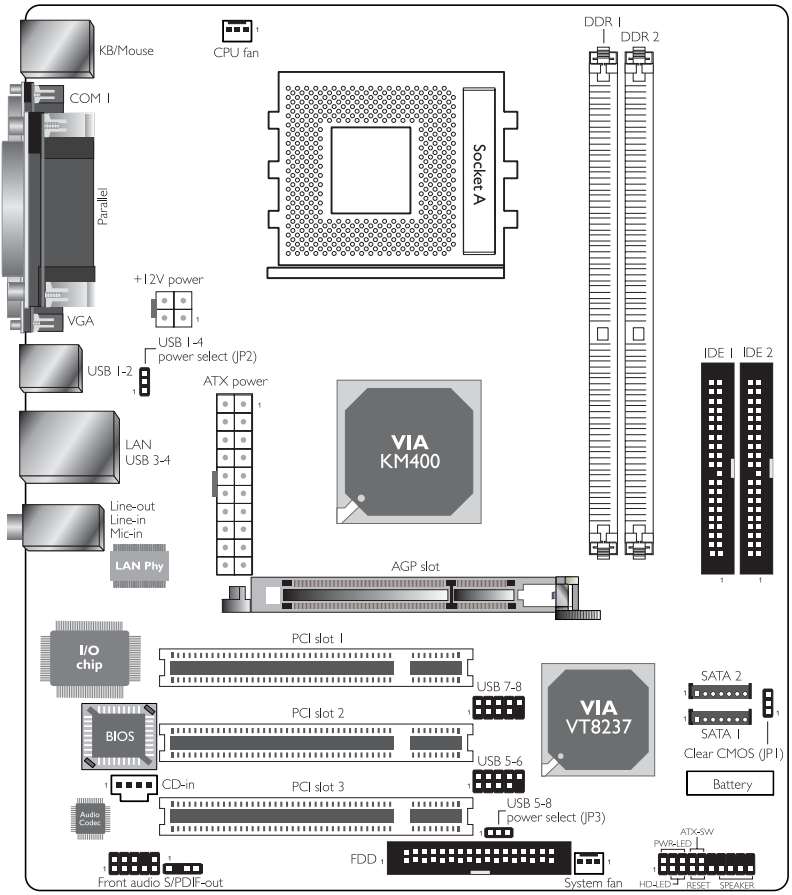
2.1 System Board Layout



KM400A-MLV
(Supports onboard LAN)

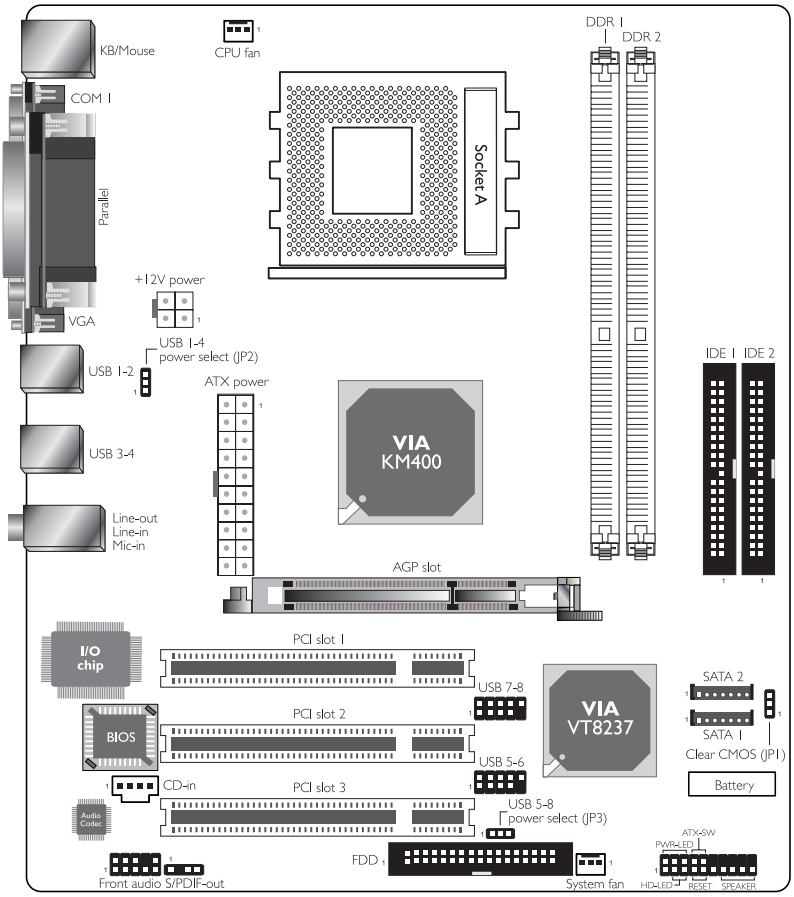

KB/Mouse
CPU fan
DDR 1
DDR 2
COM 1
Parallel
Socket A
+12V power
VGA
USB 1-4
power select (JP2)
USB 1-2
ATX power
IDE 1
IDE 2
VIA
KM400A
USB 3-4
Line-out
Line-in
Mic-in
AGP slot
I/O
chip
PCI slot 1
USB 7-8
VIA
VT8237
SATA 2
PCI slot 2
BIOS
SATA 1
Clear CMOS (JP1)
USB 5-6
CD-in
PCI slot 3
Battery
Audio
Codec
USB 5-8
power select (JP3)
ATX-SW
PWR-LED
FDD
System fan
HD-LED
RESET
SPEAKER
Front audio S/PDIF-out

KM400A-MV



KM400-MLV

(Supports onboard LAN)



KM400-MV

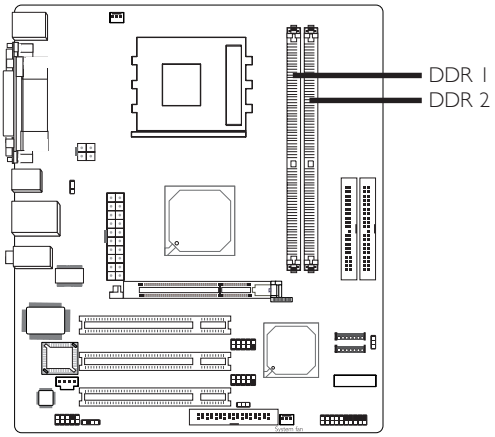
Note:

The illustrations on the following pages are based on the system board that supports onboard LAN.

Warning:

Electrostatic discharge (ESD) can damage your system board, processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

2.2 System Memory



The system board supports DDR SDRAM DIMM. Double Data Rate SDRAM (DDR SDRAM) is a type of SDRAM that doubles the data rate through reading and writing at both the rising and falling edge of each clock. This effectively doubles the speed of operation therefore doubling the speed of data transfer.

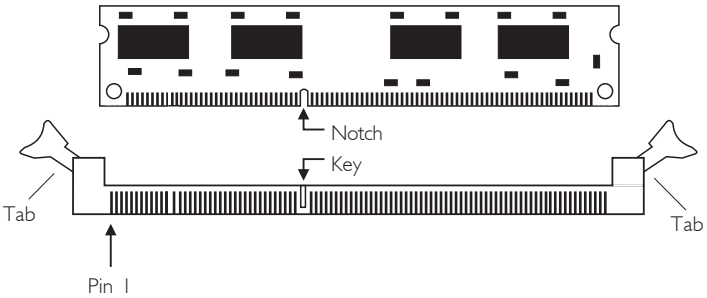
Refer to chapter 1 (System Memory section) for detailed specification of the memory supported by the system board.

BIOS Setting

Configure the system memory in the Advanced Chipset Features submenu ("DRAM Clock/Drive Control" section) of the BIOS.

2.2.1 Installing the DIM Module

A DIM module simply snaps into a DIMM socket on the system board. Pin 1 of the DIM module must correspond with Pin 1 of the socket.



1. Pull the "tabs" which are at the ends of the socket to the side.
2. Position the DIMM above the socket with the "notch" in the module aligned with the "key" on the socket.
3. Seat the module vertically into the socket. Make sure it is completely seated. The tabs will hold the DIMM in place.

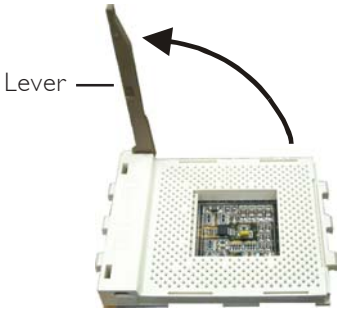
2.3 CPU

2.3.1 Overview

The system board is equipped with a surface mount Socket A CPU socket. This socket is exclusively designed for installing an AMD CPU.

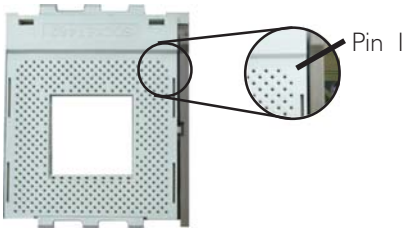
2.3.2 Installing the CPU

1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate Socket A on the system board.
4. Unlock the socket by pushing the lever sideways, away from the socket, then lifting it up to a 90° angle. Make sure the socket is lifted to at least this angle otherwise the CPU will not fit in properly.



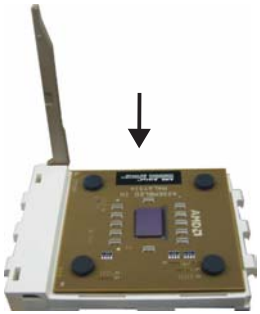
5. Position the CPU above the socket then align the gold mark on the corner of the CPU (designated as pin 1) with pin 1 of the socket.

Important:
Handle the CPU by its edges and avoid touching the pins.

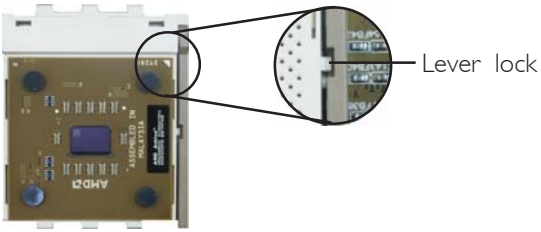


6. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force.

Important:
Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.



7. Once the CPU is in place, push down the lever to lock the socket. The lever should click on the side tab to indicate that the CPU is completely secured in the socket.

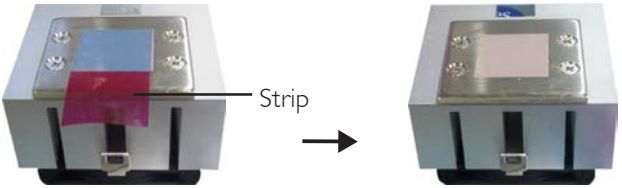


2.3.3 Installing the Fan and Heat Sink

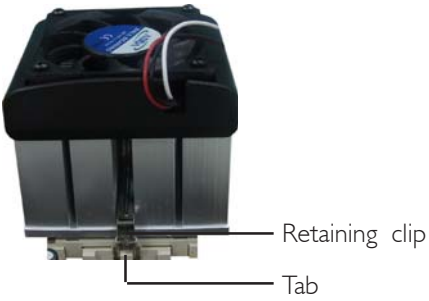
The CPU must be kept cool by using a CPU fan with heat sink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.

1. Before you install the fan / heat sink, you must apply a thermal paste onto the top of the CPU. The thermal paste, which is usually supplied together with the CPU, looks somewhat similar to the one shown below. Do not spread the paste all over the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.

Do not apply the paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste then place the fan / heat sink on top of the CPU.



2. After placing the fan / heat sink on top of the CPU, latch the retaining clip on one side of the fan heat sink onto the protruding tab on the side of the socket.

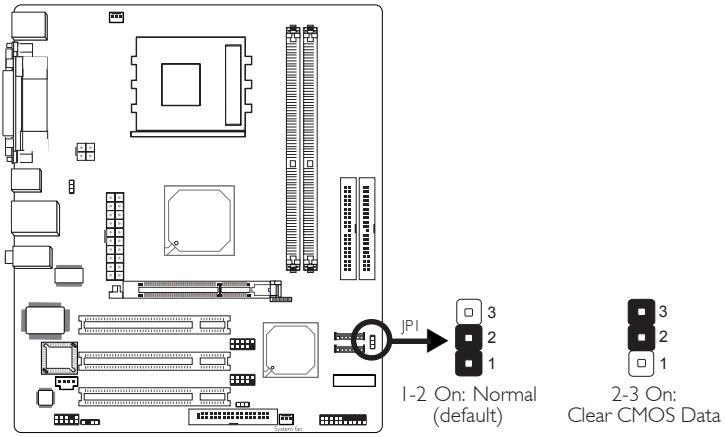


3. Push down the other retaining clip until it latches and lock onto the protruding tab on that side of the socket. Make sure there is sufficient air circulation across the CPU fan and heat sink.

4. Connect the CPU fan's cable connector to the CPU fan connector on the system board.

2.4 Jumper Settings

2.4.1 Jumper Settings for Clearing CMOS Data



If you encounter the following,

a) CMOS data becomes corrupted.
b) You forgot the keyboard, supervisor or user password.
c) You are unable to boot-up the computer system because the processor's clock was incorrectly set in the BIOS.

you can reconfigure the system with the default values stored in the ROM BIOS.

To load the default values stored in the ROM BIOS, please follow the steps below.

1. Power-off the system and unplug the power cord.

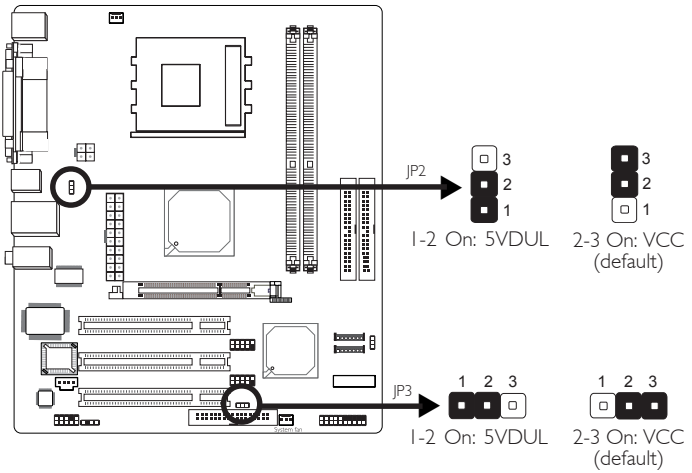
2. Set JP1 pins 2 and 3 to On. Wait for a few seconds and set JP1 back to its default setting, pins 1 and 2 On.

3. Plug the power cord and power-on the system.

   If your reason for clearing the CMOS data is due to incorrect setting of the processor's ratio/clock in the BIOS, please proceed to step 4.

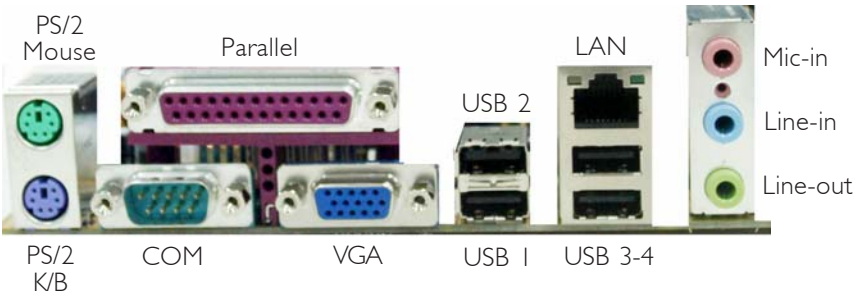
4. After powering-on the system, press <Del> to enter the main menu of the BIOS.
5. Select the Frequency/Voltage Control submenu and press <Enter>.
6. Set the "CPU Host/AGP/PCI Clock" field to its default setting or an appropriate bus clock. Refer to the Frequency/Voltage Control section in chapter 3 for more information.
7. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.
8. Type <Y> and press <Enter>.

2.4.2 Jumper Settings for Selecting the USB Power



JP2 (USB 1-4) and JP3 (USB 5-8) are used to select the power of the USB ports. Selecting 5VDUL will allow you to use a USB device to wake up a system from the S1 state.

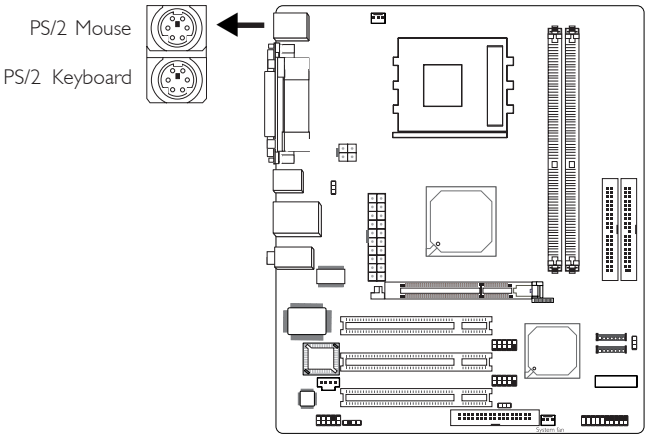
2.5 Rear Panel I/O Ports



The rear panel I/O ports consist of the following:

- PS/2 mouse port
- PS/2 keyboard port
- Parallel port
- COM port
- VGA port
- USB ports
- LAN port (KM400-MLV only)
- Mic-in jack
- Line-in jack
- Line-out jack

2.5.1 PS/2 Mouse and PS/2 Keyboard Ports



The system board is equipped with an onboard PS/2 mouse (Green) and PS/2 keyboard (Purple) ports - both at location CN1 of the system board. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.

Warning:
Make sure to turn off your computer prior to connecting or disconnecting a mouse or keyboard. Failure to do so may damage the system board.

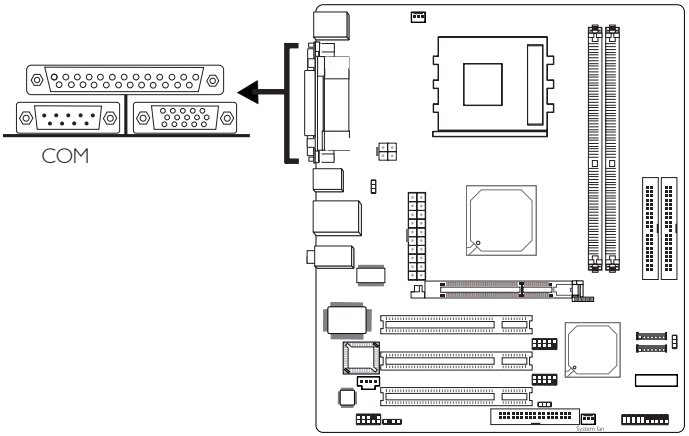
Wake-On-PS/2 Keyboard/Mouse

The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

- **BIOS Setting:**
  Configure the KB/mouse wake up function in the Power Management Setup submenu ("IRQ/Event Activity Detect" section) of the BIOS. Refer to chapter 3 for more information.

Important:
The 5VSB power source of your power supply must support ≥720mA.

2.5.2 Serial Port

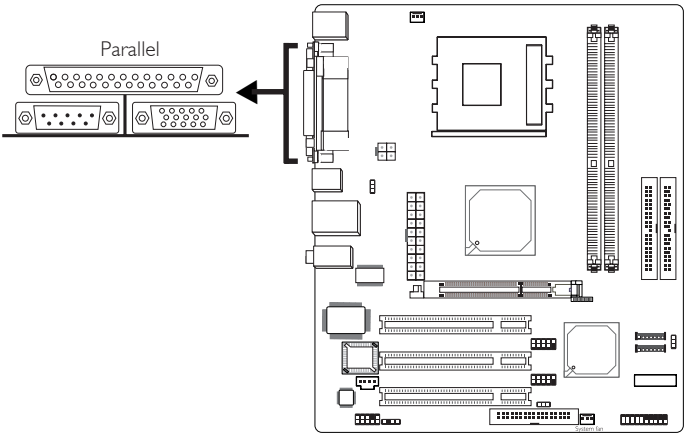


The system board is equipped with an onboard serial port (Teal/ Turquoise) at location CN4 of the system board. It is a RS-232C asynchronous communication port with 16C550A-compatible UART that can be used with a modem, serial printer, remote display terminal or other serial devices.

BIOS Setting

Select the serial port's I/O address in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

2.5.3 Parallel Port



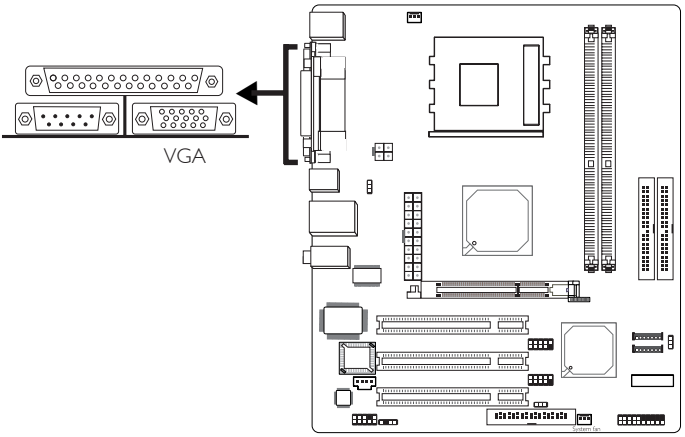
The system board has a standard parallel port (Burgundy) at location CN7 for interfacing your PC to a parallel printer. It supports SPP, ECP and EPP.

Setting	Function
SPP (Standard Parallel Port)	Allows normal speed operation but in one direction only.
ECP (Extended Capabilities Port)	Allows parallel port to operate in bidirectional mode and at a speed faster than the SPP's data transfer rate.
EPP (Enhanced Parallel Port)	Allows bidirectional parallel port operation at maximum speed.

BIOS Setting

Select the parallel port's mode in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

2.5.4 VGA Port



The system board can only be used with an analog video monitor. Connect the monitor's 15-pin D-shell cable connector to the VGA port (Blue) at location CN2. If your monitor supports analog video but does not have a 15-pin D-shell connector, see your monitor dealer for the adapter or optional cable. After you plug the monitor cable into the VGA port, gently tighten the cable screws to hold the connector in place. Some monitors have a switch that chooses between analog and TTL (or digital) operation. If your monitor has such a switch, set it for analog.

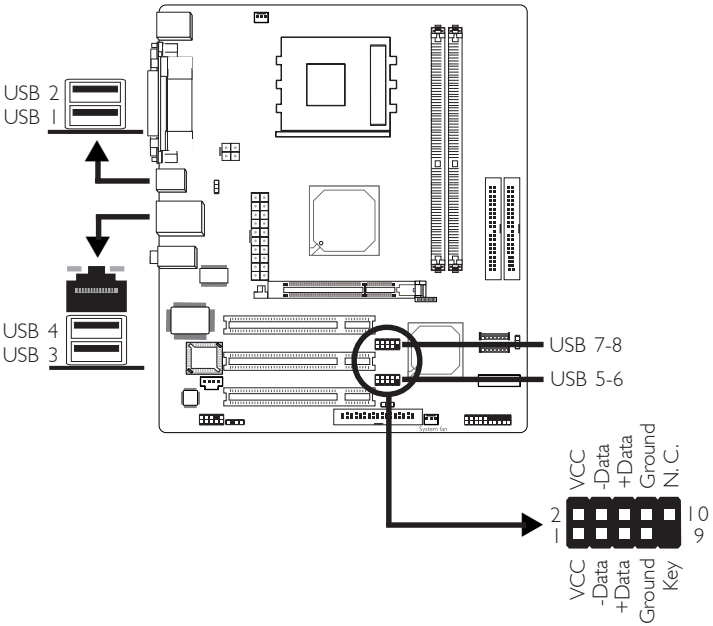
BIOS Setting

Select the VGA's share memory size in the Advanced Chipset Features submenu ("AGP and P2P Bridge Control" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the "S3 VGA Drivers". Refer to chapter 4 for more information.

2.5.5 Universal Serial Bus Ports



Four onboard USB 2.0/1.1 ports (Black) are at locations CN5 (USB 1-2) and CN6 (USB 3-4) of the system board.

J6 (USB 5-6) and J7 (USB 7-8) connectors allow you to connect 4 additional USB 2.0/1.1 ports. The USB ports may be mounted on a card-edge bracket. Install the card-edge bracket to the system chassis then insert the connector that is attached to the USB port cables to J6 or J7.

BIOS Setting

Configure the onboard USB in the Integrated Peripherals submenu ("VIA OnChip PCI Device" section) of the BIOS.

Driver Installation

You may need to install the proper drivers in your operating system to use the USB device. Refer to your operating system's manual or documentation for more information.

If you are using a USB 2.0 device, install the "USB 2.0 Drivers". Refer to chapter 4 for more information.

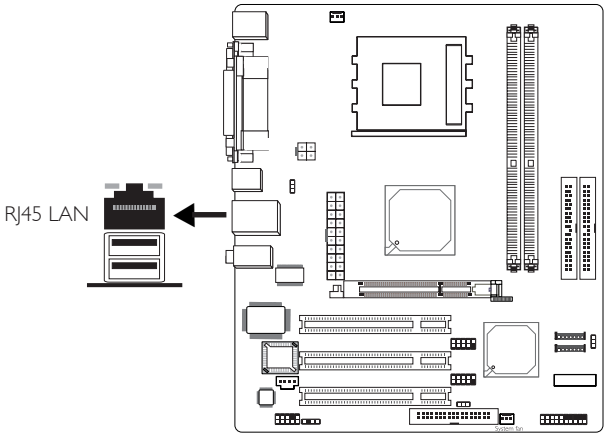
Wake-On-USB

The Wake-On-USB function allows you to use a USB device to wake up the system.

Important:

- *If you are using the Wake-On-USB function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A.*
- *If you are using the Wake-On-USB function for 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.*

2.5.6 RJ45 Fast-Ethernet Port (KM400A-MLV/ KM400-MLV only)



The KM400A-MLV/KM400-MLV system board is equipped with an onboard RJ45 fast-ethernet LAN port at location CN6 of the system board. It allows the system board to connect to a local area network by means of a network hub.

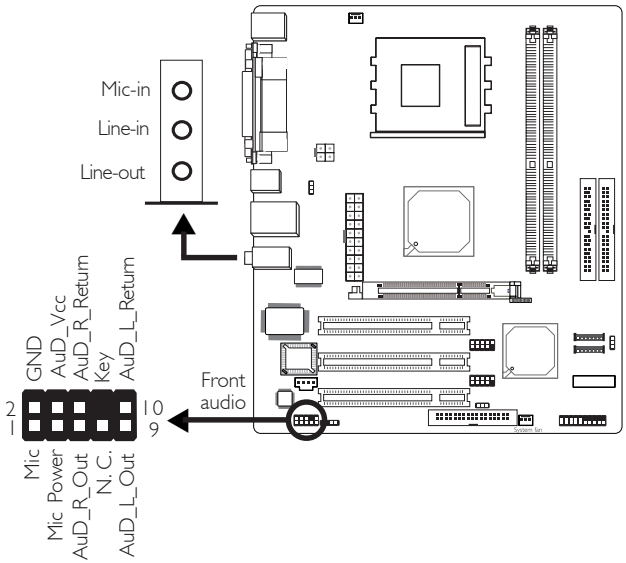
BIOS Setting

Enable or disable the onboard LAN in the Integrated Peripherals submenu ("VIA OnChip PCI Device" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the "VIA LAN Drivers". Refer to chapter 4 for more information.

2.5.7 Audio



Mic-in, Line-in and Line-out

The mic-in, line-in and line-out jacks are at location CN3 of the system board. A jack is a one-hole connecting interface for inserting a plug.

- **Mic-in Jack (Pink)**
  This jack is used to connect an external microphone.

- **Line-in Jack (Light Blue)**
  This jack can be connected to the line-out jack of any external audio devices such as Hi-fi set, CD player, AM/FM radio tuner, synthesizer, etc. Connect a stereo cable from the line-out jack of your external device to this line-in jack.

- **Line-out Jack (Lime)**
  This jack is used to connect external speakers for audio output from the system board. Using this jack disables the front audio's line-out function.

Front Audio

The front audio connector (J1) allows you to connect to the line-out and mic-in jacks that are at the front panel of your system. Using this connector will disable the rear audio's line-out and mic-in functions.

Remove the jumper caps from pins 5-6 and pins 9-10 of J1 prior to connecting the front audio cable connector. Make sure pin 1 of the cable connector is aligned with pin 1 of J1. If you are not using this connector, make sure to replace the jumper caps back to their original pin locations.

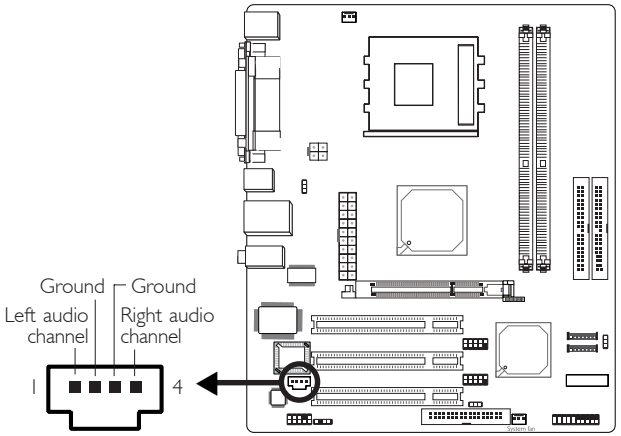
Pins 5-6 and 9-10 short (default)	The front audio is disabled. The rear audio is enabled.
Pins 5-6 and 9-10 open	The front audio is enabled. The rear audio is disabled.

Driver Installation

Install the "Realtek Audio Drivers". An audio software application program will at the same time be installed into your system. This program will allow you to configure 2-channel, 4-channel and 6-channel audio modes as well as configure the audio effects. Refer to chapter 4 for more information.

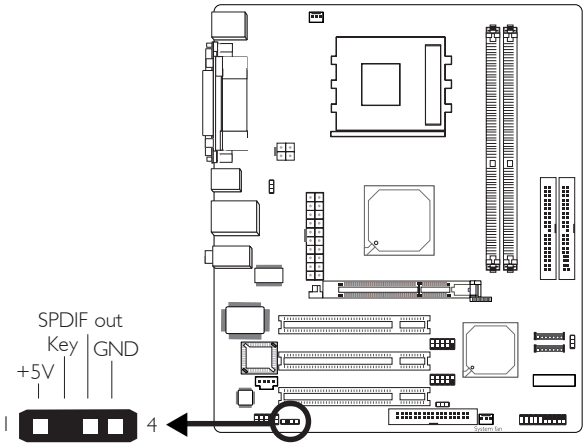
2.6 I/O Connectors

2.6.1 CD-in Internal Audio Connector



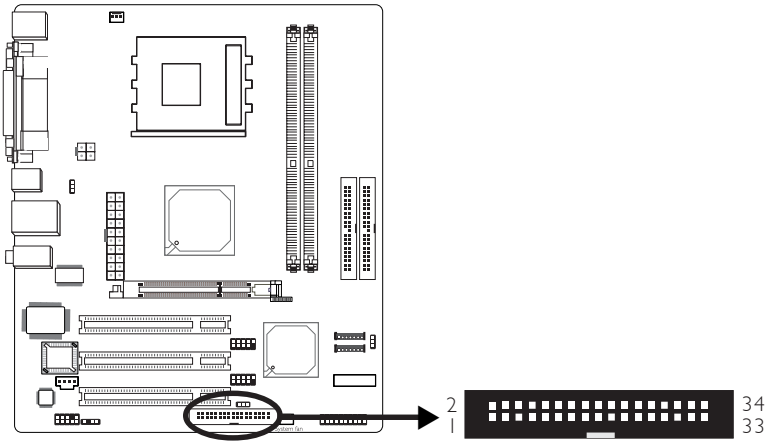
The CD-in (J2) connector is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

2.6.2 S/PDIF-out Connector



The S/PDIF-out connector (J3) is used to connect external S/PDIF port. The S/PDIF-out port may be mounted on a card-edge bracket. Install the card-edge bracket to the system chassis then connect the audio cable connector to J3. Make sure pin 1 of the audio cable connector is aligned with pin 1 of J3.

2.6.3 Floppy Disk Drive Connector



The system board is equipped with a shrouded floppy disk drive connector for connecting a standard floppy disk drive. To prevent improper floppy cable installation, the shrouded floppy disk header has a keying mechanism. The 34-pin connector on the floppy cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.

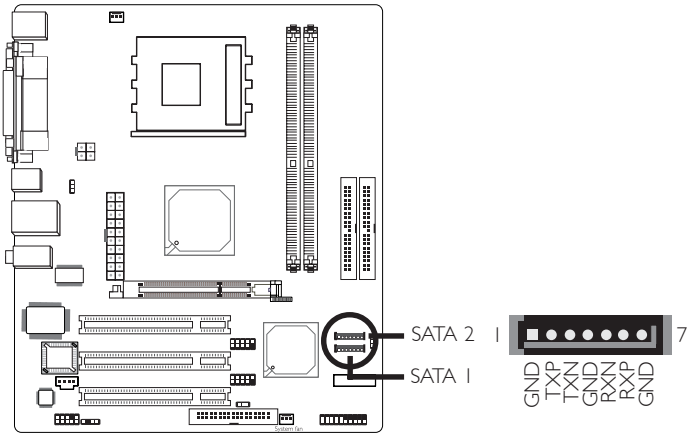
Connecting the Floppy Disk Drive Cable

Install one end of the floppy disk drive cable into the shrouded floppy disk header (J5) on the system board and the other end-most connector to the floppy drive. The colored edge of the daisy chained ribbon cable should be aligned with pin 1 of J5.

BIOS Setting

Enable or disable this function in the Integrated Peripherals submenu ("Super I/O Device" section) of the BIOS. Refer to chapter 3 for more information.

2.6.4 Serial ATA Connectors

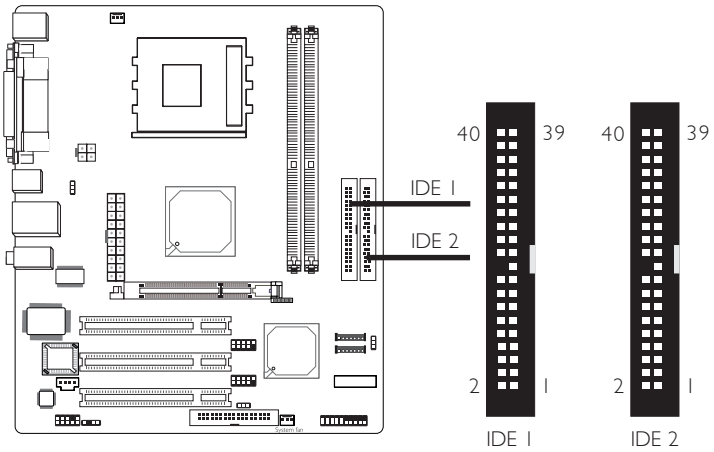


Connect one end of the SATA cable to J12 (SATA 2) or J13 (SATA 1) and the other end to your serial ATA device.

BIOS Setting

If you want the system to boot from the SATA drive, set the "SATA or SCSI Card Boot" field to "VIA 8237 SATA" in the Advanced BIOS Features submenu of the Award BIOS.

2.6.5 IDE Disk Drive Connector



The system board is equipped with two shrouded PCI IDE headers that will interface four Enhanced IDE (Integrated Drive Electronics) disk drives. To prevent improper IDE cable installation, each shrouded PCI IDE header has a keying mechanism. The 40-pin connector on the IDE cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.

Each IDE connector supports 2 devices, a Master and a Slave. Use an IDE ribbon cable to connect the drives to the system board. An IDE ribbon cable have 3 connectors on them, one that plugs into an IDE connector on the system board and the other 2 connects to IDE devices. The connector at the end of the cable is for the Master drive and the connector in the middle of the cable is for the Slave drive.

Connecting the IDE Disk Drive Cable

Install one end of the IDE cable into the IDE 1 header (J14) on the system board and the other connectors to the IDE devices.

If you are adding a third or fourth IDE device, use another IDE cable and install one end of the cable into the IDE 2 header (J15) on the system board and the other connectors to the IDE devices.

Note:
Refer to your disk drive user's manual for information about selecting proper drive switch settings.

Adding a Second IDE Disk Drive

When using two IDE drives, one must be set as the master and the other as the slave. Follow the instructions provided by the drive manufacturer for setting the jumpers and/or switches on the drives.

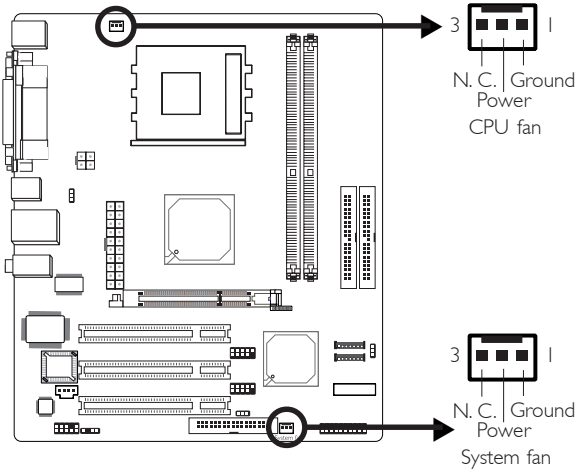
The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66, ATA/100 or ATA/133 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the system board.

Important:
If you encountered problems while using an ATAPI CD-ROM drive that is set in Master mode, please set the CD-ROM drive to Slave mode. Some ATAPI CD-ROMs may not be recognized and cannot be used if incorrectly set in Master mode.

BIOS Setting

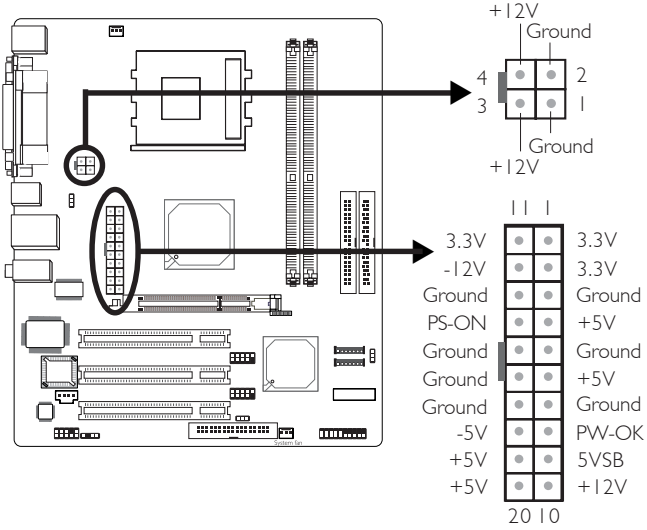
Enable or disable the onboard primary or secondary IDE in the Integrated Peripherals submenu ("VIA OnChip IDE Device" section) of the BIOS. Refer to chapter 3 for more information.

2.6.6 Cooling Fan Connectors



Connect the CPU fan's cable connector to the CPU fan connector (J4) on the system board. The system fan connector (J8) is used to connect an additional cooling fan. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

2.6.7 Power Connectors

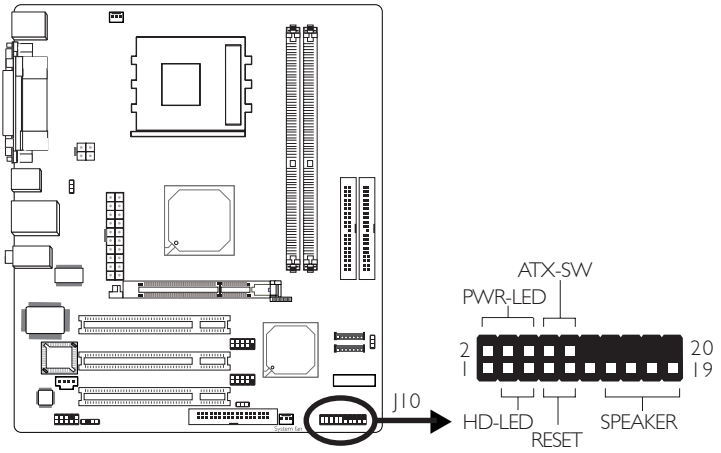


We recommend that you use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. An ATX12V power supply has a standard 20-pin ATX main power connector and a 4-pin +12V power connector that must be inserted onto CN9 and CN8 connectors respectively.

The 4-pin +12V power connector enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM).

The system board requires a minimum of 250 Watt power supply to operate. Your system configuration (amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, use a 300 Watt (or greater) power supply.

2.6.8 Front Panel Connectors



HD-LED: Primary/Secondary IDE LED

This LED will light when the hard drive is being accessed.

RESET: Reset Switch

This switch allows you to reboot without having to power off the system thus prolonging the life of the power supply or system.

SPEAKER: Speaker Connector

This connects to the speaker installed in the system chassis.

ATX-SW: ATX Power Switch

Depending on the setting in the BIOS setup, this switch is a "dual function power button" that will allow your system to enter the Soft-Off or Suspend mode. Refer to "Soft-Off By PWRBTN" in the Power Management Setup (Chapter 3).

PWR-LED: Power/Standby LED

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, it will blink every second.

Note:

If a system did not boot-up and the Power/Standby LED did not light after it was powered-on, it may indicate that the CPU or memory module was not installed properly. Please make sure they are properly inserted into their corresponding socket.

	Pin	Pin Assignment
HD-LED (Primary/Secondary IDE LED)	3 5	HDD LED Power HDD
Reserved	14 16	N. C. N. C.
ATX-SW (ATX power switch)	8 10	PWRBT+ PWRBT-
Reserved	18 20	N. C. N. C.
RESET (Reset switch)	7 9	Ground H/W Reset
SPEAKER (Speaker connector)	13 15 17 19	Speaker Data N. C. Ground Speaker Power
PWR-LED (Power/Standby LED)	2 4 6	LED Power (+) LED Power (+) LED Power (-) or Standby Signal

Chapter 3 - BIOS Setup

3.1 Award BIOS Setup Utility

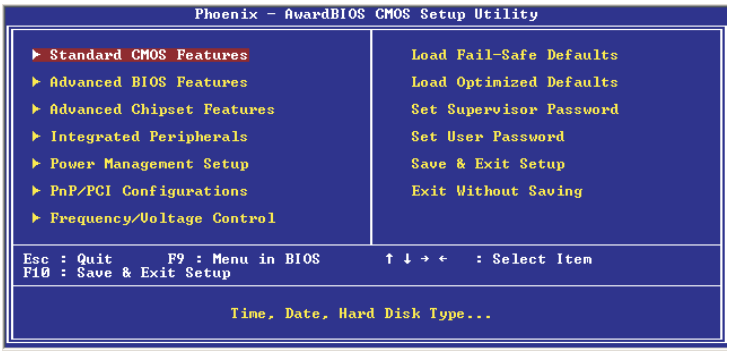
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the following message will appear on the screen:

Press DEL to enter setup

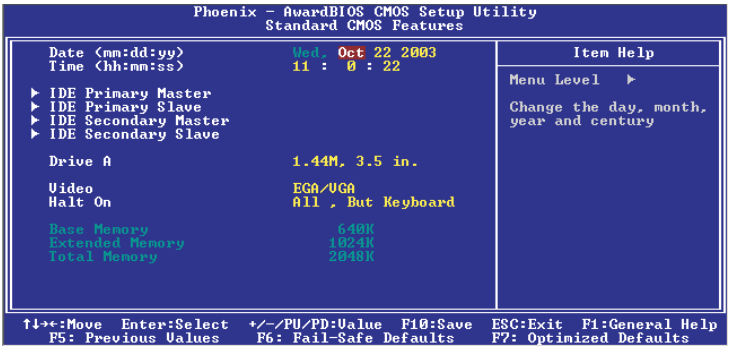
If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

When you press <Del>, the main menu screen will appear.



3.1.1 Standard CMOS Features

Use the arrow keys to highlight "Standard CMOS Features" and press <Enter>. A screen similar to the one below will appear.


Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features
Date (mm:dd:yy) Wed, Oct 22 2003
Time (hh:mm:ss) 11 : 0 : 22
IDE Primary Master
IDE Primary Slave
IDE Secondary Master
IDE Secondary Slave
Drive A 1.44M, 3.5 in.
Video EGA/VGA
Halt On All , But Keyboard
Base Memory 640K
Extended Memory 1024K
Total Memory 2048K
Item Help
Menu Level ▶
Change the day, month, year and century
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

3.1.1.1 Date

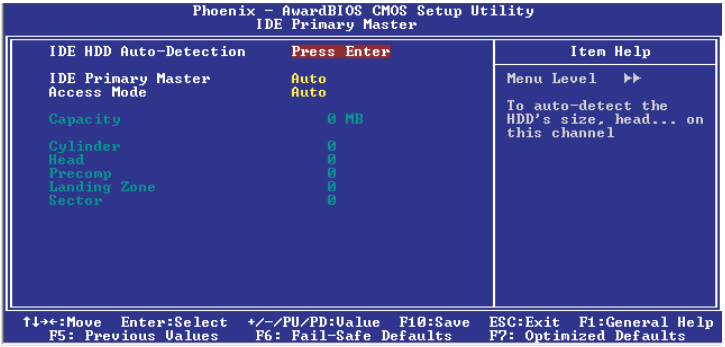
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1994 to 2079.

3.1.1.2 Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

3.1.1.3 IDE Primary Master, IDE Primary Slave, IDE Secondary Master and IDE Secondary Slave

Move the cursor to the "IDE Primary Master", "IDE Primary Slave", "IDE Secondary Master" or "IDE Secondary Slave" field, then press <Enter>. The following screen will appear.



The settings on the screen are for reference only. Your version may not be identical to this one.

IDE HDD Auto-Detection

Detects the parameters of the drive. The parameters will automatically be shown on the screen.

IDE Primary Master/Slave and IDE Secondary Master/Slave

The drive type information should be included in the documentation from your hard disk vendor. If you select "Auto", the BIOS will auto-detect the HDD & CD-ROM drive at the POST stage and show the IDE for the HDD & CD-ROM drive. If a hard disk has not been installed, select "None".

Access Mode

For hard drives larger than 528MB, you would typically select the LBA type. Certain operating systems require that you select CHS or Large. Please check your operating system's manual or Help desk on which one to select.

Capacity

Displays the approximate capacity of the disk drive. Usually the size is slightly greater than the size of a formatted disk given by a disk checking program.

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

This field displays the number of cylinders at which to change the write timing.

Landing Zone

This field displays the number of cylinders specified as the landing zone for the read/write heads.

Sector

This field displays the number sectors per track.

3.1.1.4 Drive A

This field is used to select the type of floppy disk drive installed.

None	No floppy drive is installed
360K, 5.25 in.	5-1/4 in. standard drive; 360KB capacity
1.2M, 5.25 in.	5-1/4 in. AT-type high-density drive; 1.2MB capacity
720K, 3.5 in.	3-1/2 in. double-sided drive; 720KB capacity
1.44M, 3.5 in.	3-1/2 in. double-sided drive; 1.44MB capacity
2.88M, 3.5 in.	3-1/2 in. double-sided drive; 2.88MB capacity

3.1.1.5 Video

This field selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type. The default setting is EGA/VGA.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA and PGA monitor adapters.
CGA 40	Color Graphics Adapter. Power up in 40-column mode.
CGA 80	Color Graphics Adapter. Power up in 80-column mode.
Mono	Monochrome adapter. Includes high resolution monochrome adapters.

3.1.1.6 Halt On

This field determines whether the system will stop if an error is detected during power up. The default setting is All Errors.

No Errors	The system boot will not stop for any errors detected.
All Errors	The system boot will stop whenever the BIOS detects a non-fatal error.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a disk or keyboard error; it will stop for all other errors.

3.1.1.7 Base Memory

Displays the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard or 640K for systems with 640K or more memory installed on the motherboard.

3.1.1.8 Extended Memory

Displays the amount of extended memory detected during boot-up.

3.1.1.9 Total Memory

Displays the total memory available in the system.

3.1.2 Advanced BIOS Features

The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
Virus Warning Disabled
CPU Internal Cache Enabled
External Cache Enabled
CPU L2 Cache ECC Checking Enabled
Quick Power On Self Test Enabled
SATA or SCSI Card Boot VIA 8237 SATA
First Boot Device Floppy
Second Boot Device HDD-0
Third Boot Device CDROM
Boot Other Device Enabled
Boot Up Floppy Seek Enabled
Boot Up NumLock Status On
Gate A20 Option Fast
Typematic Rate Setting Disabled
x Typematic Rate (Chars/Sec) 6
x Typematic Delay (Msec) 250
Security Option Setup
MPS Version Control For OS 1.1
OS Select For DRAM > 64MB Non-OS2
Full Screen LOGO Show Enabled
Small Logo(EPA) Show Enabled
Item Help
Menu Level ▶
Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area , BIOS will show a warning message on screen and alarm beep
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The screen above list all the fields available in the Advanced BIOS Features submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. The settings on the screen are for reference only. Your version may not be identical to this one.

3.1.2.1 Virus Warning

This field protects the boot sector and partition table of your hard disk drive. When this field is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive. If an attempt is made to write to the boot sector or partition table of the hard disk drive, the BIOS will halt the system and an error message will appear.

After seeing the error message, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are running such a program, we recommend that you first disable this field. Also, disable this field if you are installing or running certain operating systems like Windows® 98/2000/ME/XP or the operating system may not install nor work.

3.1.2.2 CPU Internal Cache and External Cache

These fields speed up the memory access. The default is Enabled, which provides better performance by enabling cache.

3.1.2.3 CPU L2 Cache ECC Checking

The processors supported by the system board come with built-in Level 2 cache. By default, ECC is enabled to check the Level 2 cache. If you are not using this function, set this field to Disabled.

3.1.2.4 Quick Power On Self Test

This field speeds up Power On Self Test (POST) whenever the system is powered on. The BIOS will shorten or skip some check items during POST. To attain the shortest POST time, select "Enabled".

3.1.2.5 SATA or SCSI Card Boot

If there are drives connected to both the SATA connector and PCI SCSI add-in card, you must select the drive you want to boot.

VIA 8237 SATA	The drive is connected to the SATA connector that is on the system board.
PCI SCSI Card	The drive is connected to the PCI SCSI add-in card that is installed in a PCI slot.

3.1.2.6 First Boot Device, Second Boot Device, Third Boot Device and Boot Other Device

Select the drive to boot first, second and third in the "First Boot Device" "Second Boot Device" and "Third Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected. Set "Boot Other Device" to Enabled if you wish to boot from another device.

3.1.2.7 Boot Up Floppy Seek

When enabled, the BIOS will check whether the floppy disk drive installed is 40 or 80 tracks. Note that the BIOS cannot distinguish between 720K, 1.2M, 1.44M and 2.88M drive types as they are all 80 tracks. When disabled, the BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360KB.

3.1.2.8 Boot Up NumLock Status

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

3.1.2.9 Gate A20 Option

This entry allows you to select how gate A20 is handled. Gate A20 is a device used to address memory above 1 Mbyte. Initially, gate A20 was handled via the keyboard controller. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Fast The chipset controls Gate A20.
Normal A pin in the keyboard controller controls Gate A20.

3.1.2.10 Typematic Rate Setting

Disabled Continually holding down a key on your keyboard will cause the BIOS to report that the key is down.
Enabled The BIOS will not only report that the key is down, but will first wait for a moment, and, if the key is still down, it will begin to report that the key has been depressed repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys. You can then select the typematic rate and typematic delay in the "Typematic Rate (Chars/Sec)" and "Typematic Delay (Msec)" fields below.

3.1.2.11 Typematic Rate (Chars/Sec)

This field allows you to select the rate at which the keys are accelerated.

3.1.2.12 Typematic Delay (Msec)

This field allows you to select the delay between when the key was first depressed and when the acceleration begins.

3.1.2.13 Security Option

This field determines when the system will prompt for the password - everytime the system boots or only when you enter the BIOS setup. Set the password in the Set Supervisor/User Password submenu.

System The system will not boot and access to Setup will be denied unless the correct password is entered at the prompt.

Setup The system will boot, but access to Setup will be denied unless the correct password is entered at the prompt.

3.1.2.14 MPS Version Control for OS

This field is used to select the MPS version that the system board is using.

3.1.2.15 OS Select for DRAM > 64MB

Select the "OS2" option only if the system that is running an OS/2 operating system has greater than 64MB RAM.

3.1.2.16 Full Screen Logo Show

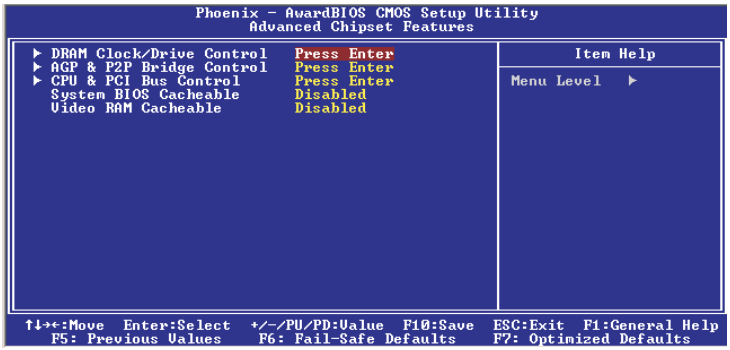
This field is applicable only if you want a particular logo to appear during system boot-up.

Enabled The logo will appear in full screen during system boot-up.
Disabled The logo will not appear during system boot-up.

3.1.2.17 Small Logo(EPA) Show

Enabled The EPA logo will appear during system boot-up.
Disabled The EPA logo will not appear during system boot-up.

3.1.3 Advanced Chipset Features

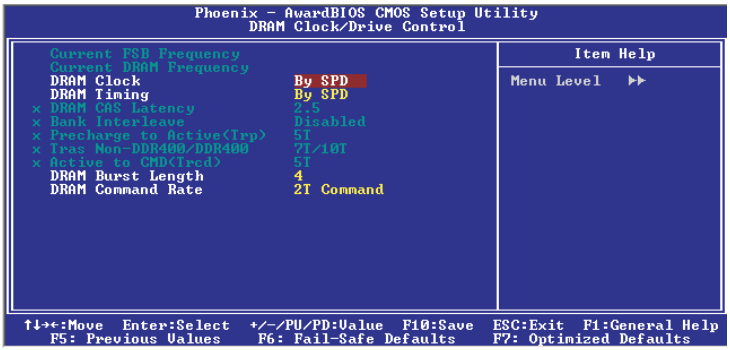

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
DRAM Clock/Drive Control Press Enter
AGP & P2P Bridge Control Press Enter
CPU & PCI Bus Control Press Enter
System BIOS Cacheable Disabled
Video RAM Cacheable Disabled
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources. **These items should not be altered unless necessary.** The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered some incompatibility or that data was being lost while using your system.

3.1.3.1 DRAM Clock/Drive Control

Move the cursor to this field and press <Enter>. The following screen will appear.


Phoenix - AwardBIOS CMOS Setup Utility
DRAM Clock/Drive Control
Current FSB Frequency
Current DRAM Frequency
DRAM Clock By SPD
DRAM Timing By SPD
x DRAM CAS Latency 2.5
x Bank Interleave Disabled
x Precharge to Active(Trp) 5T
x Tras Non-DDR400/DDR400 7T/10T
x Active to CMD(Trcd) 5T
DRAM Burst Length 4
DRAM Command Rate 2T Command
Item Help
Menu Level ▶▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

Current FSB Frequency

This field will show the detected FSB of the CPU.

Current DRAM Frequency

This field will show the detected frequency of the DDR SDRAM DIMM.

DRAM Clock

This field is used to select the clock speed of the DDR SDRAM DIMM.

By SPD	The EEPROM on a DIMM has SPD (Serial Presence Detect) data structure that stores information about the module such as the memory type, memory size, memory speed, etc. When this option is selected, the system will run according to the information in the EEPROM. This option is the default setting because it provides the most stable condition for the system.
100 MHz	The memory clock speed will run at 200MHz.
133 MHz	The memory clock speed will run at 266MHz.
166 MHz	The memory clock speed will run at 332MHz.
200 MHz	The memory clock speed will run at 400MHz DDR.

DRAM Timing

This field is used to select the timing of the DRAM.

By SPD	The EEPROM on a DIMM has SPD (Serial Presence Detect) data structure that stores information about the module such as the memory type, memory size, memory speed, etc. When this option is selected, the system will run according to the information in the EEPROM. This option is the default setting because it provides the most stable condition for the system.
Turbo	If you want the system to run at a speed faster than "By SPD", select this option. However, compatibility problems may occur with some

DRAMs. If you encounter any problems, set this field to "By SPD" or "Manual".

Ultra If you want the system to run at a speed faster than "Turbo", select this option. However, compatibility problems may occur with some DRAMs. If you encounter any problems, set this field to "By SPD" or "Manual".

Manual This option allows you to manually select the options in the "DRAM CAS Latency" to "Active to CMD (Trcd)" fields. The system will run according to the settings in these fields.

DRAM CAS Latency

This field is used to select the clock cycle of the SDRAM CAS latency time. The option selected specifies the time before SDRAM starts a read command after receiving it.

Bank Interleave

The options are Enabled and Disabled.

Precharge to Active (Trp)

The options are 2T, 3T, 4T and 5T.

Tras Non-DDR400/DDR400

The options are 5T/6T, 8T/12T, 6T/8T and 7T/10T.

Active to CMD (Trcd)

The options are 2T, 3T, 4T and 5T.

DRAM Burst Length

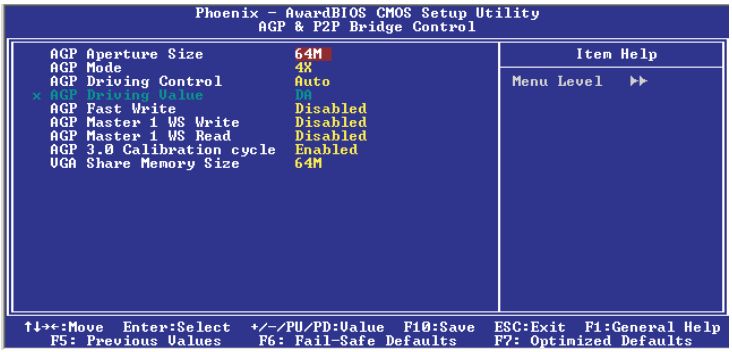
The options are 4 and 8.

DRAM Command Rate

The options are 1T Command and 2T Command.

3.1.3.2 AGP & P2P Bridge Control

Move the cursor to this field and press <Enter>. The following screen will appear.


Phoenix - AwardBIOS CMOS Setup Utility
AGP & P2P Bridge Control
AGP Aperture Size 64M
AGP Mode 4X
AGP Driving Control Auto
AGP Driving Value
AGP Fast Write Disabled
AGP Master 1 WS Write Disabled
AGP Master 1 WS Read Disabled
AGP 3.0 Calibration cycle Enabled
VGA Share Memory Size 64M
Item Help
Menu Level ▸▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

AGP Aperture Size

This field is relevant to the memory-mapped graphics data of the AGP card installed in your system. Leave this in its default setting.

AGP Mode

This field allows you to select the AGP mode (data transfer rate) that your AGP card supports to enable enhanced graphics performance with high bandwidth speeds.

1X provides data transfer rate of up to 264MB/sec.
2X provides data transfer rate of up to 528MB/sec.
4X provides data transfer rate of up to 1066MB/sec.

AGP Driving Control

Set this field to Manual only if there are compatibility problems with some AGP cards. When set to Manual, you must select a value in the "AGP Driving Value" field.

AGP Driving Value

This field is used to select a value for the AGP Driving control. We recommend that you leave this field in its default setting.

AGP Fast Write

Select Enabled to support the AGP Fast Write function.

AGP Master 1 WS Write

Set this field to Enabled to add one clock tick to AGP write operations.

AGP Master 1 WS Read

Set this field to Enabled to add one clock tick to AGP read operations.

AGP 3.0 Calibration Cycle

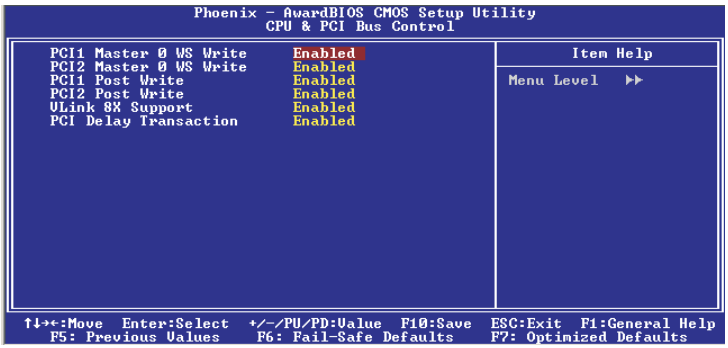
Set this field to Enabled to support the AGP 3.0 calibration cycle operations.

VGA Share Memory Size

This field is used to select the memory size that will be shared by the VGA.

3.1.3.3 CPU & PCI Bus Control

Move the cursor to this field and press <Enter>. The following screen will appear.


Phoenix – AwardBIOS CMOS Setup Utility
CPU & PCI Bus Control
PCI1 Master 0 WS Write Enabled
PCI2 Master 0 WS Write Enabled
PCI1 Post Write Enabled
PCI2 Post Write Enabled
VLink 8X Support Enabled
PCI Delay Transaction Enabled
Item Help
Menu Level ▸▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

PCI1 Master 0 WS Write and PCI2 Master 0 WS Write

When enabled, writes to the PCI bus are executed with zero wait state.

PCI1 Post Write and PCI2 Post Write

The options are Enabled and Disabled.

VLink 8x Support

Enabled	The speed of VLink which links the North Bridge and South Bridge is 8x.
Disabled	The speed of VLink which links the North Bridge and South Bridge is 4x.

PCI Delay Transaction

When enabled, this function frees up the PCI bus for other PCI masters during the PCI-to-ISA transactions. This allows PCI and ISA buses to be used more efficiently and prevents degradation of performance on the PCI bus when ISA accesses are made.

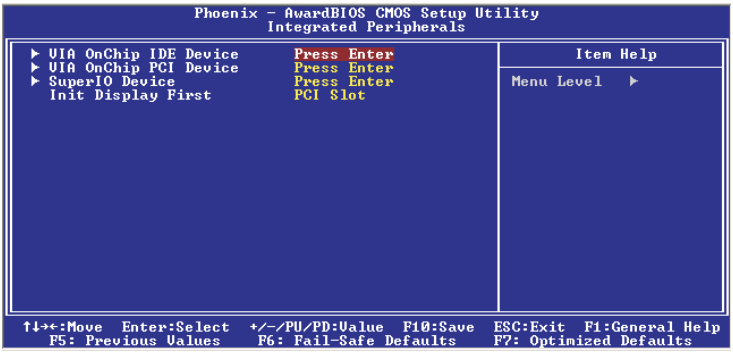
3.1.3.4 System BIOS Cacheable

When this field is enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled. The larger the range of the Cache RAM, the higher the efficiency of the system.

3.1.3.5 Video RAM Cacheable

When enabled, it allows the video RAM to be cacheable thus providing better video performance. If your graphics card does not support this function, leave this field in its default setting - Disabled.

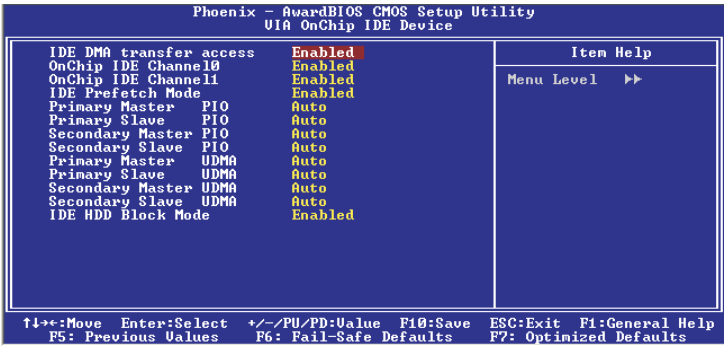
3.1.4 Integrated Peripherals


Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals
▶ VIA OnChip IDE Device Press Enter
▶ VIA OnChip PCI Device Press Enter
▶ SuperIO Device Press Enter
Init Display First PCI Slot
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

3.1.4.1 VIA OnChip IDE Device

Move the cursor to this field and press <Enter>. The following screen will appear.


Phoenix – AwardBIOS CMOS Setup Utility
VIA OnChip IDE Device
IDE DMA transfer access Enabled
OnChip IDE Channel0 Enabled
OnChip IDE Channel1 Enabled
IDE Prefetch Mode Enabled
Primary Master PIO Auto
Primary Slave PIO Auto
Secondary Master PIO Auto
Secondary Slave PIO Auto
Primary Master UDMA Auto
Primary Slave UDMA Auto
Secondary Master UDMA Auto
Secondary Slave UDMA Auto
IDE HDD Block Mode Enabled
Item Help
Menu Level ▶▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

IDE DMA Transfer Access

This field, when Enabled, will enhance the IDE DMA transfer of an IDE hard disk drive.

OnChip IDE Channel0 and OnChip IDE Channel1

These fields allow you to enable or disable the primary and secondary IDE controller. The default is Enabled. Select Disabled if you want to add a different hard drive controller.

IDE Prefetch Mode

This allows data and addresses to be stored in the internal buffer of the chip, thus reducing access time. Enable this field to achieve better performance.

Primary Master/Slave PIO and Secondary Master/Slave PIO

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode after checking your drive.

Auto	The BIOS will automatically set the system according to your hard disk drive's timing.
Mode 0-4	You can select a mode that matches your hard disk drive's timing. Caution: Do not use the wrong setting or you will have drive errors.

Primary Master/Slave UDMA and Secondary Master/Slave UDMA

These fields allow you to set the Ultra DMA in use. When Auto is selected, the BIOS will select the best available option after checking your hard drive or CD-ROM.

Auto	The BIOS will automatically detect the settings for you.
Disabled	The BIOS will not detect these categories.

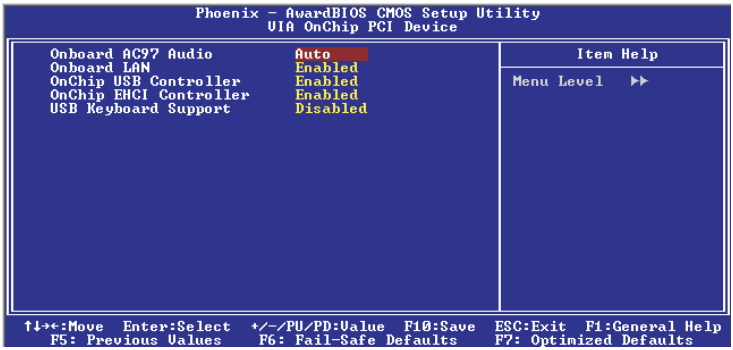
IDE HDD Block Mode

Enabled The IDE HDD uses the block mode. The system BIOS will check the hard disk drive for the maximum block size the system can transfer. The block size will depend on the type of hard disk drive.

Disabled The IDE HDD uses the standard mode.

3.1.4.2 VIA OnChip PCI Device

Move the cursor to this field and press <Enter>. The following screen will appear.



The settings on the screen are for reference only. Your version may not be identical to this one.

Onboard AC97 Audio

Auto Select this option when using the onboard audio codec.

Disabled Select this option when using a PCI sound card.

Onboard LAN (KM400A-MLV/KM400-MLV only)

This field is used to enable or disable the onboard LAN.

OnChip USB Controller

This field is used to enable or disable the onboard USB.

OnChip EHCI Controller

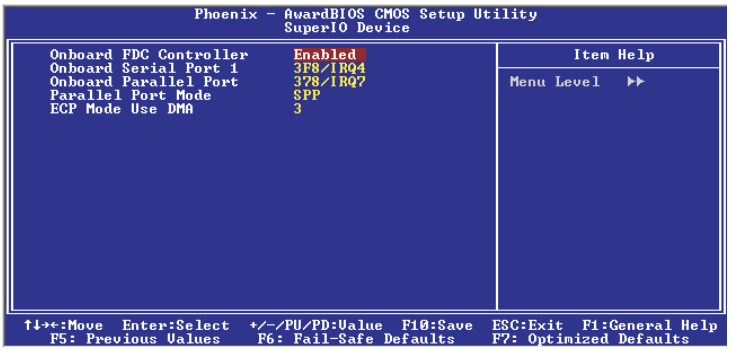
If you are using USB 2.0, this field must be set to Enabled.

USB Keyboard Support

By default, USB Keyboard Support is Disabled. However, if you are using a USB keyboard under DOS, make sure to enable this function.

3.1.4.3 Super IO Device

Move the cursor to this field and press <Enter>. The following screen will appear.


Phoenix - AwardBIOS CMOS Setup Utility
SuperIO Device
Onboard FDC Controller Enabled
Onboard Serial Port 1 3F8/IRQ4
Onboard Parallel Port 378/IRQ7
Parallel Port Mode SPP
ECP Mode Use DMA 3
Item Help
Menu Level ▸▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

Onboard FDC Controller

Enabled Enables the onboard floppy disk controller.
Disabled Disables the onboard floppy disk controller.

Onboard Serial Port 1

Auto The system will automatically select an I/O address for the onboard serial port.
3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3 Allows you to manually select an I/O address for the onboard serial port.
Disabled Disables the onboard serial port.

Onboard Parallel Port

378/IRQ7, 3BC/IRQ7, 278/IRQ5 Selects the I/O address and IRQ for the onboard parallel port.
Disabled Disables the onboard parallel port.

Parallel Port Mode

The options are SPP, EPP, ECP and ECP+EPP. These apply to a standard specification and will depend on the type and speed of your device. Refer to your peripheral's manual for the best option.

SPP
Allows normal speed operation but in one direction only.

ECP (Extended Capabilities Port)
Allows parallel port to operate in bidirectional mode and at a speed faster than the normal mode's data transfer rate.

EPP (Enhanced Parallel Port)
Allows bidirectional parallel port operation at maximum speed.

If you selected EPP, the "EPP Mode Select" field is configurable. If you selected ECP, the "ECP Mode Use DMA" field is configurable. If you selected ECP+EPP, both "EPP Mode Select" and "ECP Mode Use DMA" are configurable.

ECP Mode Use DMA

This is used to select the DMA channel of the parallel port.

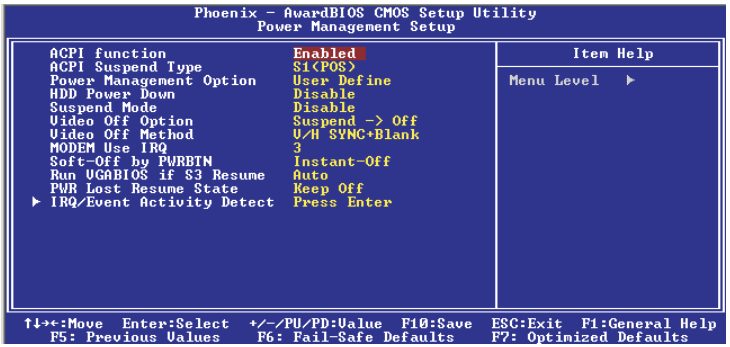
3.1.4.4 Init Display First

This field is used to select whether to initialize the AGP or PCI first when the system boots.

AGP When the system boots, it will first initialize the AGP.
PCI Slot When the system boots, it will first initialize PCI.

3.1.5 Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy.


Phoenix – AwardBIOS CMOS Setup Utility
Power Management Setup
ACPI function Enabled
ACPI Suspend Type S1(POS)
Power Management Option User Define
HDD Power Down Disable
Suspend Mode Disable
Video Off Option Suspend -> Off
Video Off Method V/H SYNC+Blank
MODEM Use IRQ 3
Soft-Off by PWRBTN Instant-Off
Run VGABIOS if S3 Resume Auto
PWR Lost Resume State Keep Off
IRQ/Event Activity Detect Press Enter
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

3.1.5.1 ACPI Function

This function should be enabled only in operating systems that support ACPI. Currently, only Windows® 98SE/2000/ME/XP supports this function. When this field is enabled, the system will ignore the settings in the "HDD Power Down" field. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3(STR)" in the field below.

3.1.5.2 ACPI Suspend Type

This field is used to select the type of Suspend mode.

S1(POS)	Enables the Power On Suspend function.
S3(STR)	Enables the Suspend to RAM function.

3.1.5.3 Power Management Option

This field allows you to select the type (or degree) of power saving by changing the length of idle time that elapses before the "HDD Power Down" field is activated.

Min Saving	Minimum power saving time for the "HDD Power Down" = 15 min.
Max Saving	Maximum power saving time for the "HDD Power Down" = 1 min.
User Define	Allows you to set the power saving time in the "HDD Power Down" field.

3.1.5.4 HDD Power Down

This is selectable only when the Power Management field is set to User Define. When the system enters the HDD Power Down mode according to the power saving time selected, the hard disk drive will be powered down while all other devices remain active.

3.1.5.5 Suspend Mode

This is configurable only when the Power Management field is set to "User Define". When the system enters the power saving time set in this field, the CPU and onboard peripherals will be shut off.

3.1.5.6 Video Off Option

Always On	The system BIOS will never turn off the screen.
Suspend -> Off	The screen is off when the system is in the Suspend mode.

3.1.5.7 Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen This option only writes blanks to the video buffer.

DPMS Initializes display power management signaling. Use this option if your video board supports it.

3.1.5.8 MODEM Use IRQ

This field is used to set an IRQ channel for the modem installed in your system.

3.1.5.9 Soft-Off by PWRBTN

This field allows you to select the method of powering off your system.

Delay 4 Sec. Regardless of whether the Power Management function is enabled or disabled, if the power button is pushed and released in less than 4 sec, the system enters the Suspend mode. The purpose of this function is to prevent the system from powering off in case you accidentally "hit" or pushed the power button. Push and release again in less than 4 sec to restore. Pushing the power button for more than 4 seconds will power off the system.

Instant-Off Pressing and then releasing the power button at once will immediately power off your system.

3.1.5.10 Run VGABIOS if S3 Resume

When this field is set to Auto, the system will initialize the VGA BIOS when it wakes up from the S3 state. This can be configured only if the "ACPI Suspend Type" field is set to "S3(STR)".

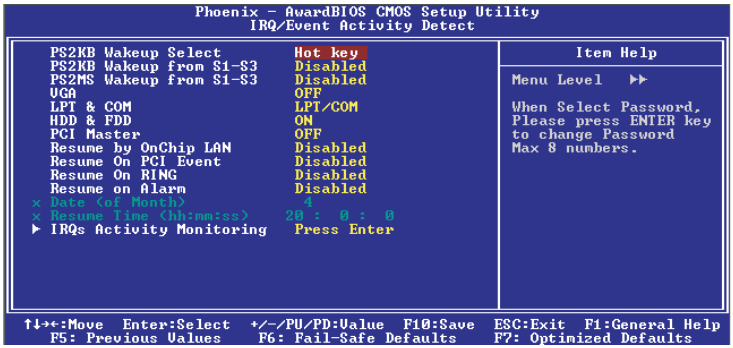
3.1.5.11 PWR Lost Resume State

Keep Off When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.

Turn On When power returns after an AC power failure, the system will automatically power-on.

3.1.5.12 IRQ/Event Activity Detect

Move the cursor to this field and press <Enter>. The following screen will appear.


Phoenix - AwardBIOS CMOS Setup Utility
IRQ/Event Activity Detect
PS2KB Wakeup Select Hot key
PS2KB Wakeup from S1-S3 Disabled
PS2MS Wakeup from S1-S3 Disabled
VGA OFF
LPT & COM LPT/COM
HDD & FDD ON
PCI Master OFF
Resume by OnChip LAN Disabled
Resume On PCI Event Disabled
Resume On RING Disabled
Resume on Alarm Disabled
x Date (of Month) 4
x Resume Time (hh:mm:ss) 20 : 0 : 0
IRQs Activity Monitoring Press Enter
Item Help
Menu Level ▸▸
When Select Password, Please press ENTER key to change Password Max 8 numbers.
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

PS2KB Wakeup Select

This field allows you to use a function key or password to wake up the system.

Hot Key Use any of the function keys, between F1 and F12, to wake up the system.

Password Use a password to wake up the system. Select this option and press <Enter>. Enter your password. You can enter up to 5 characters. Type in exactly the same password to confirm, then press <Enter>.

Important:

If you forgot the password, you must power-off the system, unplug the power cord and clear the CMOS data by setting JP1 pins 2 and 3 to On.

PS2KB Wakeup from S1-S3

The options in this field will allow you to use the PS/2 keyboard to wake up the system from the S1 or S3 state.

PS2MS Wakeup from S1-S3

This field, when enabled, allows you to use a PS/2 mouse to wake up the system from the S1 or S3 state.

VGA

When set to On, the system will respond and wake up to any VGA activity.

LPT & COM

Select the port you would like the system to respond and wake up when an event occurs on that port.

HDD & FDD

When set to On, the system will respond and wake up to any hard drive or floppy drive activity.

PCI Master

When set to On, the system will respond and wake up to any PCI or bus master activity.

Resume by OnChip LAN

This field allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. However, if your system is in the Suspend mode, you can wake up the system only through an IRQ or DMA interrupt.

Resume on PCI Event

Enabled This field should be set to Enabled only if your PCI card such as LAN card or modem card uses the PCI PME (Power Management Event) signal to remotely wake up the system. Access to the LAN card or PCI card will cause the system to wake up. Refer to the card's documentation for more information.

Disabled The system will not wake up despite access to the PCI card.

Resume On Ring

When enabled, the system will power-on to respond to calls coming from an external modem.

Resume On Alarm

Enabled When Enabled, you can set the date and time you would like the Soft Power Down (Soft-Off) PC to power-on in the "Date (of Month)" and "Resume Time (hh:mm:ss)" fields. However, if the system is being accessed by incoming calls or the network prior to the date and time set in these fields, the system will give priority to the incoming calls or network.

Disabled Disables the automatic power-on function. (default)

Date (of Month)

0 The system will power-on everyday according to the time set in the "Resume Time (hh:mm:ss)" field.

1-31 Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Resume Time (hh:mm:ss)" field.

Resume Time (hh:mm:ss)

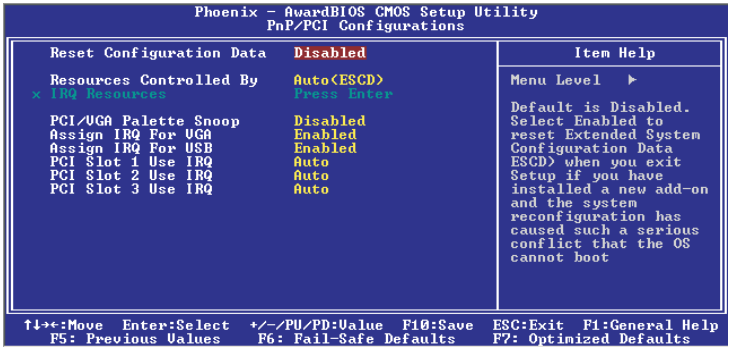
This is used to set the time you would like the system to power-on. If you want the system to power-on everyday as set in the "Date (of Month)" field, the time set in this field must be later than the time of the RTC set in the Standard CMOS Features submenu.

IRQs Activity Monitoring

Move the cursor to this field and press <Enter>. The "Primary INTR", and "IRQ3" - "IRQ15" fields will appear. When enabled, access to the specified IRQ will cause the system to wake up completely from the power management mode. When disabled, the system will not wake up from the power management mode despite access to the specified IRQ.

3.1.6 PnP/PCI Configurations

This section describes configuring the PCI bus system. It covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.


Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
Reset Configuration Data
Disabled
Resources Controlled By
Auto(ESCD)
x IRQ Resources
Press Enter
PCI/VGA Palette Snoop
Disabled
Assign IRQ For VGA
Enabled
Assign IRQ For USB
Enabled
PCI Slot 1 Use IRQ
Auto
PCI Slot 2 Use IRQ
Auto
PCI Slot 3 Use IRQ
Auto
Item Help
Menu Level ▶
Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

3.1.6.1 Reset Configuration Data

Enabled The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configuration data.

Disabled The BIOS will not reset the configuration data.

3.1.6.2 Resources Controlled By

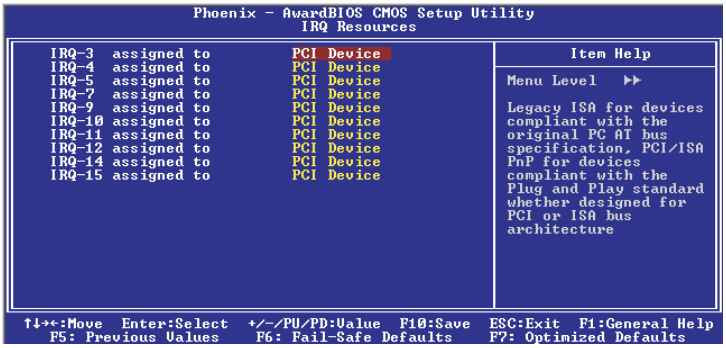
The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices.

Auto(ESCD) The system will automatically detect the settings for you.

Manual Choose the specific IRQ in the "IRQ Resources" field.

3.1.6.3 IRQ Resources

Move the cursor to this field and press <Enter>. This field is used to set each system interrupt to either Reserved or PCI Device.


Phoenix - AwardBIOS CMOS Setup Utility
IRQ Resources
IRQ-3 assigned to PCI Device
IRQ-4 assigned to PCI Device
IRQ-5 assigned to PCI Device
IRQ-7 assigned to PCI Device
IRQ-9 assigned to PCI Device
IRQ-10 assigned to PCI Device
IRQ-11 assigned to PCI Device
IRQ-12 assigned to PCI Device
IRQ-14 assigned to PCI Device
IRQ-15 assigned to PCI Device
Item Help
Menu Level ▶▶
Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

3.1.6.4 PCI/VGA Palette Snoop

This field determines whether the MPEG ISA/VESA VGA cards can work with PCI/VGA or not.

Enabled MPEG ISA/VESA VGA cards work with PCI/VGA.
Disabled MPEG ISA/VESA VGA cards does not work with PCI/VGA.

3.1.6.5 Assign IRQ for VGA

When Enabled, the system automatically assigns an IRQ for the VGA card installed. Your VGA card will need an IRQ only when using the video capture function of the card. If you are not using this function and a new device requires an IRQ, you can set this field to Disabled. The IRQ (previously occupied by the VGA card) will be available for your new device.

Note:
When Disabled, a "Yellow" mark will appear in Windows® 95's Device Manager.

3.1.6.6 Assign IRQ for USB

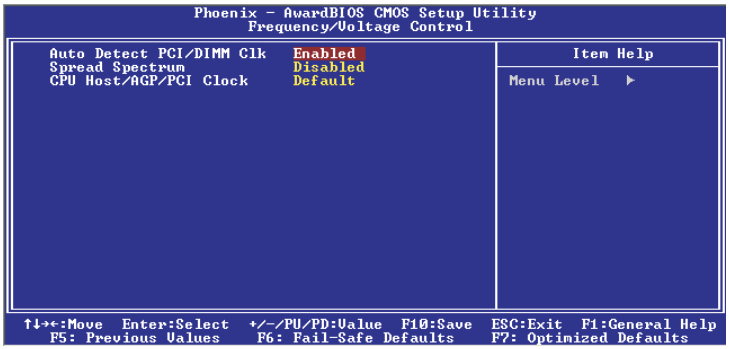
When Enabled, the system automatically assigns an IRQ for the USB device connected to your system. However, if you are not using USB devices and an ISA slot requires an IRQ, set this field to Disabled. The IRQ previously occupied by the USB device will be available for the ISA slot.

Note:
When Disabled, a "Yellow" mark will appear in Windows® 95's Device Manager.

3.1.6.7 PCI Slot 1 Use IRQ to PCI Slot 3 Use IRQ

By default, an IRQ is automatically assigned to the PCI devices that are installed in the PCI slots. If a PCI device has not been assigned an IRQ, you must manually assign an IRQ for the device. During system boot-up, you will see "NA" for the device that does not have an IRQ assigned.

3.1.7 Frequency/Voltage Control


Phoenix – AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
Auto Detect PCI/DIMM Clk Enabled
Spread Spectrum Disabled
CPU Host/AGP/PCI Clock Default
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

3.1.7.1 Auto Detect PCI/DIMM Clk

When enabled, the system will automatically send clock signals to existing PCI or DIMM devices.

3.1.7.2 Spread Spectrum

Leave this field in its default setting. Do not alter this setting unless advised by an engineer or technician.

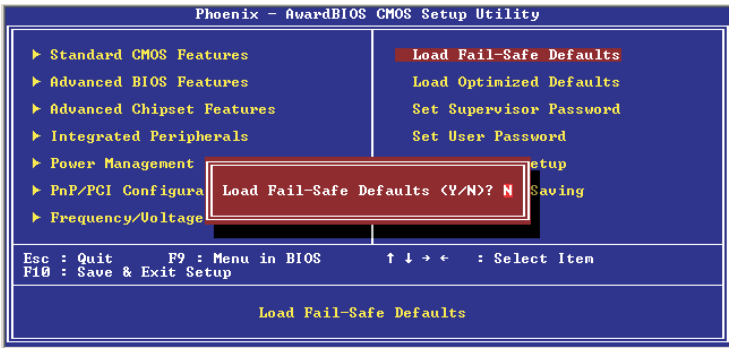
3.1.7.3 CPU Host/AGP/PCI Clock

This field provides several options for selecting the external system bus clock of the processor. The AGP clock and PCI clock will at the same time appear next to the external bus clock selected. For example, if you selected "100/66/33MHz", "100" is the external bus clock, "66" is the AGP clock and "33" is the PCI clock. The default setting is "Default". Under this setting, the system will run according to the processor's clock frequency.

Important:
Overclocking may result to the processor's or system's instability and are not guaranteed to provide better system performance.

3.1.8 Load Fail-Safe Defaults

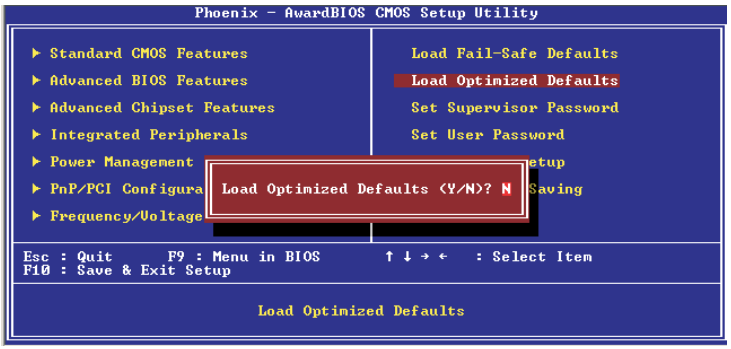
The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press <Enter>.



If you want to proceed, type <Y> and press <Enter>. The default settings will be loaded.

3.1.9 Load Optimized Defaults

The "Load Optimized Defaults" option loads optimized settings from the BIOS ROM. Use the default values as standard values for your system. Highlight this option in the main menu and press <Enter>.

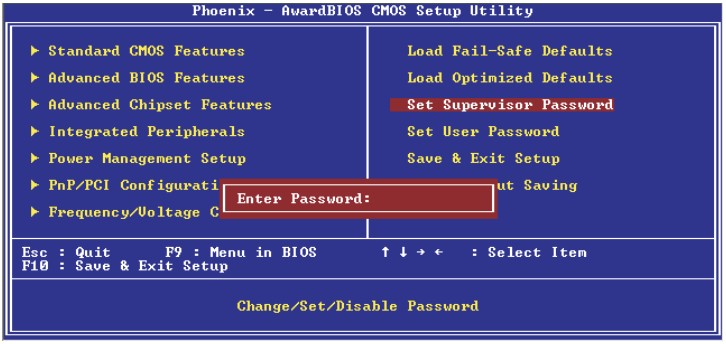


Type <Y> and press <Enter> to load the Setup default values.

3.1.10 Set Supervisor Password

If you want to protect your system and setup from unauthorized entry, set a supervisor's password with the "System" option selected in the Advanced BIOS Features. If you want to protect access to setup only, but not your system, set a supervisor's password with the "Setup" option selected in the Advanced BIOS Features. You will not be prompted for a password when you cold boot the system.

Use the arrow keys to highlight "Set Supervisor Password" and press <Enter>.



Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

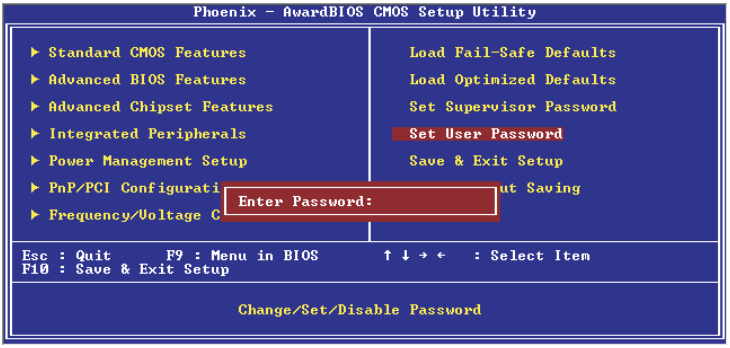
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

3.1.11 Set User Password

If you want another user to have access only to your system but not to setup, set a user's password with the "System" option selected in the Advanced BIOS Features. If you want a user to enter a password when trying to access setup, set a user's password with the "Setup" option selected in the Advanced BIOS Features.

Using user's password to enter Setup allows a user to access only "Set User Password" that appears in the main menu screen. Access to all other options is denied.

Use the arrow keys to highlight "Set User Password" and press <Enter>.



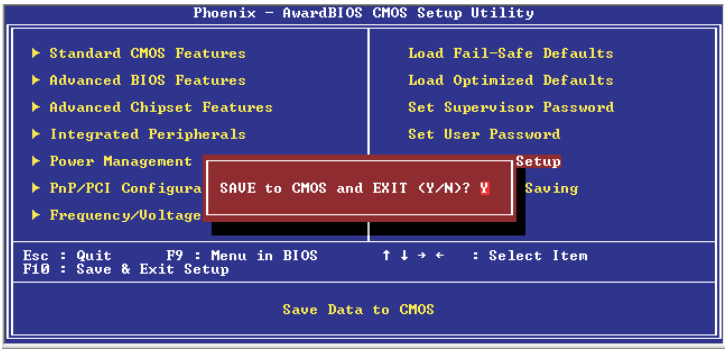
Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set User Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

3.1.12 Save & Exit Setup

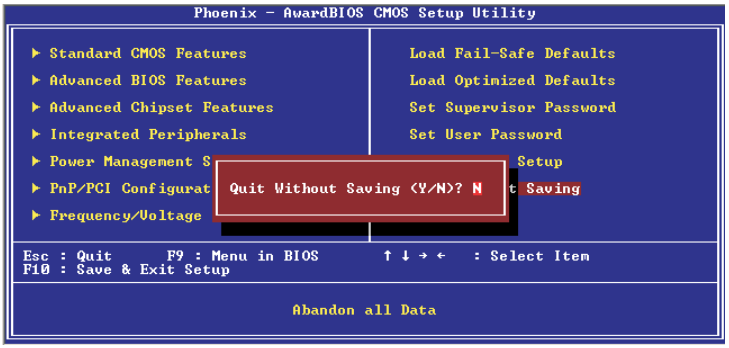
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



Type "Y" and press <Enter>. The modifications you have made will be written into the CMOS memory, and the system will reboot. You will once again see the initial diagnostics on the screen. If you wish to make additional changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.

3.1.13 Exit Without Saving

When you do not want to save the changes you have made, highlight "Exit Without Saving" and press <Enter>.

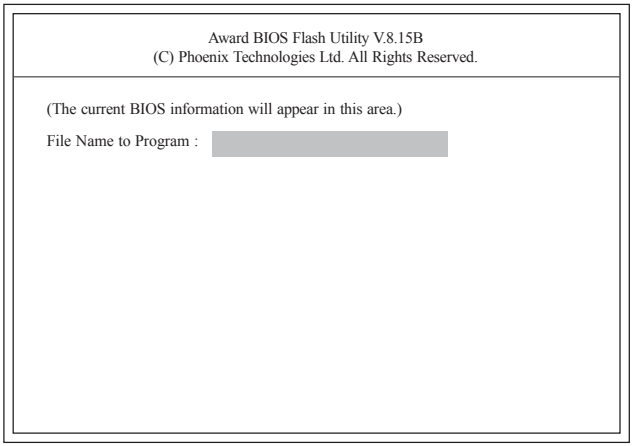


Type "Y" and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.

3.2 Updating the BIOS

To update the BIOS, you will need the new BIOS file and a flash utility, AWDFLASH.EXE. You can download them from DFI's web site or contact technical support or your sales representative.

1. Save the new BIOS file along with the flash utility AWDFLASH.EXE to a floppy disk.
2. Reboot the system and enter the Award BIOS Setup Utility to set the first boot drive to "Floppy".
3. Save the setting and reboot the system.
4. After the system booted from the floppy disk, execute the flash utility by typing AWDFLASH.EXE. The following screen will appear.


Award BIOS Flash Utility V.8.15B
(C) Phoenix Technologies Ltd. All Rights Reserved.
(The current BIOS information will appear in this area.)
File Name to Program :

5. Type the new BIOS file name onto the gray area that is next to "File Name to Program" then press <Enter>.

6. The following will appear:

   Do You Want to Save BIOS (Y/N)

   This question refers to the current existing BIOS in your system. We recommend that you save the current BIOS and its flash utility; just in case you need to reinstall the BIOS. To save the current BIOS, press <Y> then enter the file name of the current BIOS. Otherwise, press <N>.

7. The following will then appear:

   Press "Y" to Program or "N" to Exit

8. Press <Y> to flash the new BIOS.

Chapter 4 - Supported Software

4.1 Desktop Management Interface (DMI)

The system board comes with a DMI built into the BIOS. DMI, along with the appropriately networked software, is designed to make inventory, maintenance and troubleshooting of computer systems easier. With DMI, a network administrator or MIS engineer can remotely access some information about a particular computer system without physically going to it. Quite often a service call may be unnecessary as the problem can be solved remotely.

The DMI utility in the BIOS automatically records various information about your system configuration. Information about the type and speed of CPU, type and amount of memory for each memory slot, BIOS revision level, types of add-in PCI boards and components, certain revision numbers of hardware installed, etc. are automatically detected and stored in the DMI pool, which is a part of the mainboard's Plug and Play BIOS. Additional information, such as ISA based peripherals, which may not be automatically detected, can be manually recorded in the DMI pool by using the Add DMI menu. The DMI pool data is then verified or updated whenever the system hardware or setup is altered.

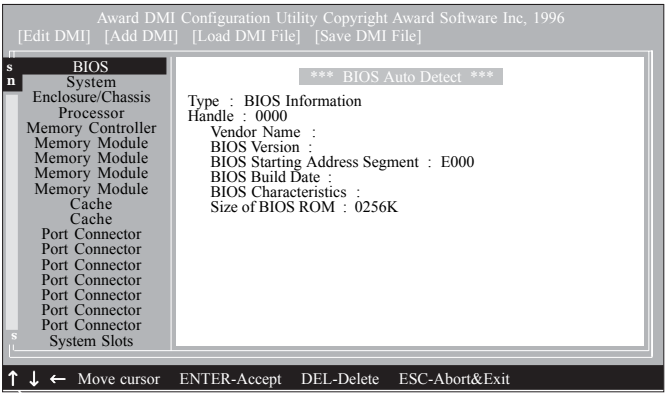
4.1.1 Running the DMI Utility

To run the DMI utility, type: DMICFG.EXE. You can download this utility from ftp.dfiusa.com - /utilities/DMI directory.

The DMI utility must run in real mode with at least 180K of base memory. Memory managers like HIMEM.SYS (required by Windows) must not be installed. You may do this by using one of the 3 methods listed below.

1. Boot up from a system diskette without the AUTOEXEC.BAT and CONFIG.SYS files,
2. "REM" HIMEM.SYS in the CONFIG.SYS, or
3. Press <F5> during bootup to bypass your AUTOEXEC.BAT and CONFIG.SYS files.

4.1.2 Using the DMI Utility



The four menus located on top of the DMI Configuration Utility screen are Edit DMI, Add DMI, Load DMI File and Save DMI File. Use the ← or → (left or right) arrow keys to select a menu from the Menu bar.

On the left side of the screen is a list of the system configuration items. Use the ↑ or ↓ (up or down) arrow keys to select an item.

The commands at the bottom of the screen will allow you to navigate through the various setup menus.

Edit DMI

1. Use the ← or → arrow keys to select the Edit DMI menu.
2. Highlight the item on the left screen that you would like to edit by using the ↑ or ↓ arrow keys, then press <Enter>.
3. The cursor will move to the screen you select allowing you to edit information. The screen will also display the auto-detected information.
4. Press <F10> to update the edited information into the flash ROM.

Add DMI

1. Use the ← or → arrow keys to select the Add DMI menu.
2. Highlight the item on the left screen that you would like to add by using the ↑ or ↓ arrow keys, then press <Enter>.
3. The cursor will move to the screen you select allowing you to enter information about the added item.
4. Press <F10> to save information into the flash ROM.

To view information about the added items, go to the Edit DMI menu.

Load DMI File

1. Use the ← or → arrow keys to select the Load DMI File menu.
2. The following message will appear.

   Press [Enter] to select DMI file for load

   Press <Enter>.
3. The DMI files will appear on the screen. Select the file you would like to load and press <Enter>.
4. The following message will appear.

   Do you want to execute? (Y/N)

   Type <Y>. All previous DMI structures will be destroyed and the new file will be saved into the flash ROM.

Save DMI File

1. Use the ← or → arrow keys to select the Save DMI File menu.
2. The following message will appear.

   Press [Enter] to select DMI file for save

   Press <Enter>.
3. Enter the directory and filename under which you would like the DMI file saved.

4.2 Drivers, Utilities and Software Applications

The CD that came with the system board contains drivers, utilities and software applications required to enhance the performance of the system board.

Insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start (which is, the Mainboard Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".

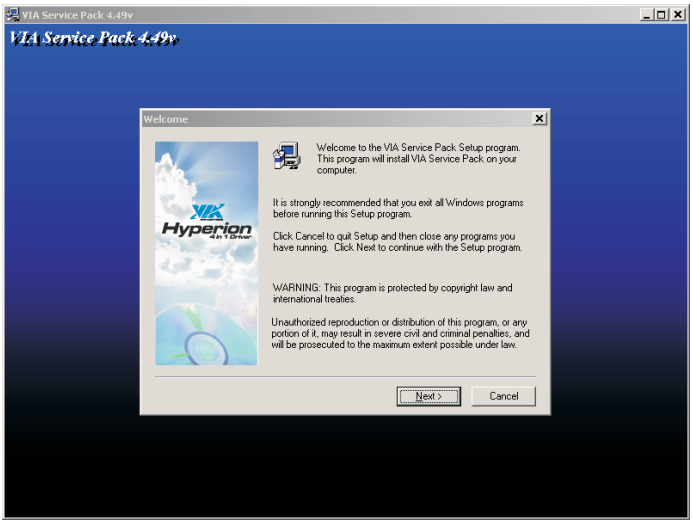
4.2.1 VIA® Service Pack

The VIA® Service Pack contains the following drivers.

- VIA ATAPI Vendor Support Driver
- AGP VxD Driver
- IRQ Routing Miniport Driver
- VIA INF Driver

To install VIA Service Pack, please follow the steps below.

1. On the left side of the autorun screen, click the "CHIPSET" icon.
2. Click "VIA Service Pack" on the main screen. The following screen will appear.


VIA Service Pack 4.49v
VIA Service Pack 4.49v
Welcome
Welcome to the VIA Service Pack Setup program. This program will install VIA Service Pack on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

3. Click "Next". Please read the "VIA Service Pack Readme" carefully before proceeding to step 3.
4. Follow the prompts on the screen to complete the installation.
5. Reboot the system for the drivers to take effect.

VIA® Service Pack Installation Notes

The "AGP VxD Driver" and "VIA INF Driver" drivers in the "VIA Service Pack" are supported in Windows® 98, Windows® 98 SE, Windows® ME and Windows® 2000.

You must first install VIA® Service Pack prior to installing any other drivers. However, this may not be the case for some AGP cards. Please read carefully the following information.

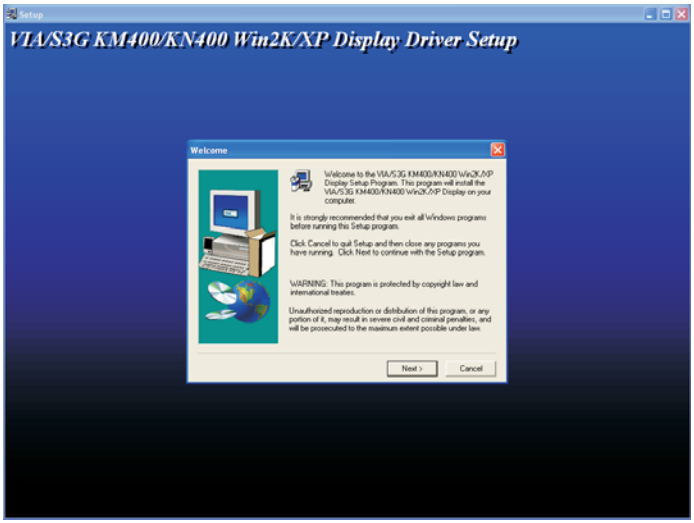
Important:

The VGA driver that came with some AGP cards is already bundled with the AGP VxD driver. Since the version of the bundled VxD driver may be older than the one provided in the CD, installing the bundled VxD driver may cause problems. If you are using this type of card, we recommend that you install first the AGP card's VGA driver before installing the VIA Service Pack.

4.2.2 S3 VGA Drivers

To install the driver, please follow the steps below.

1. On the left side of the autorun screen, click the "GRAPHICS" icon.
2. Click "S3 VGA Drivers" on the main menu. The following screen will appear.

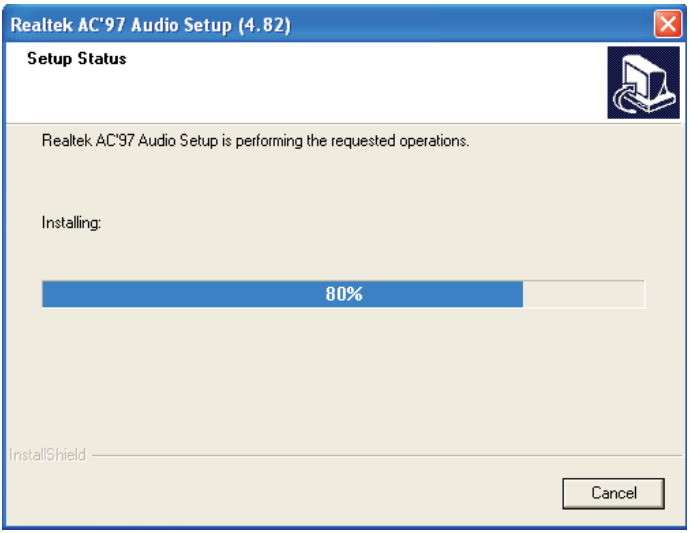

Setup
VIA/S3G KM400/KN400 Win2K/XP Display Driver Setup
Welcome
Welcome to the VIA/S3G KM400/KN400 Win2K/XP Display Setup Program. This program will install the VIA/S3G KM400/KN400 Win2K/XP Display on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

3. Follow the prompts on the screen to complete installation.
4. Restart the system.

4.2.3 Realtek Audio Drivers

To install the driver, please follow the steps below.

1. On the left side of the autorun screen, click the "AUDIO" icon.
2. Click "Realtek Audio Drivers" on the main menu. The following screen will appear.

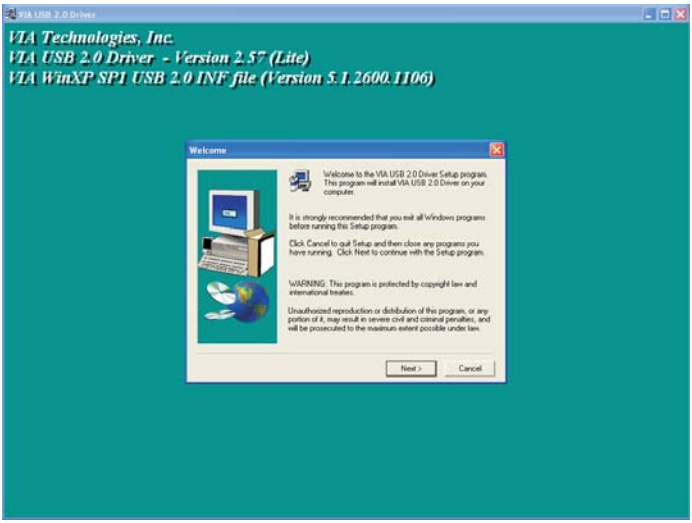


3. Follow the prompts on the screen to complete installation.
4. Restart the system.

4.2.4 VIA USB 2.0 Drivers

To install the USB 2.0 driver, please follow the steps below.

1. On the left side of the autorun screen, click the "USB" icon.
2. Click "VIA USB 2.0 Drivers". The following screen will appear.


VIA Technologies, Inc.
VIA USB 2.0 Driver - Version 2.57 (Lite)
VIA WinXP SP1 USB 2.0 INF file (Version 5.1.2600.1106)
Welcome
Next >
Cancel

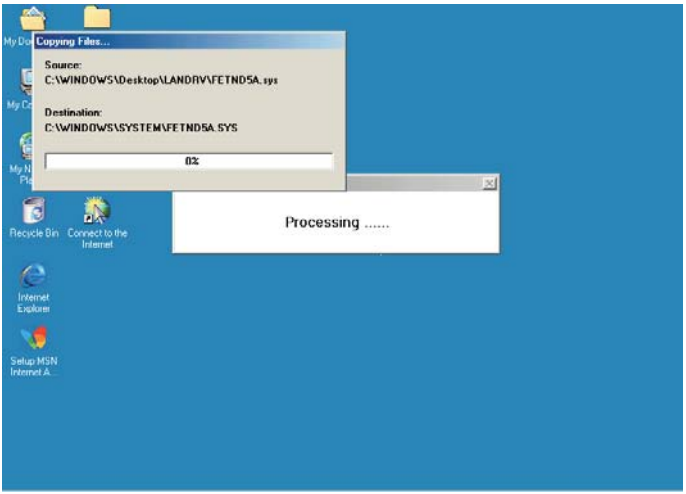
3. Follow the prompts on the screen to complete installation.
4. Restart the system.

4.2.5 VIA LAN Drivers (KM400A-MLV/KM400-MLV only)

To install the LAN driver, please follow the steps below.

1. On the left side of the autorun screen, click the "NETWORK" icon.

2. Click "VIA LAN Drivers". The following screen will appear.



3. Follow the prompts on the screen to complete installation.

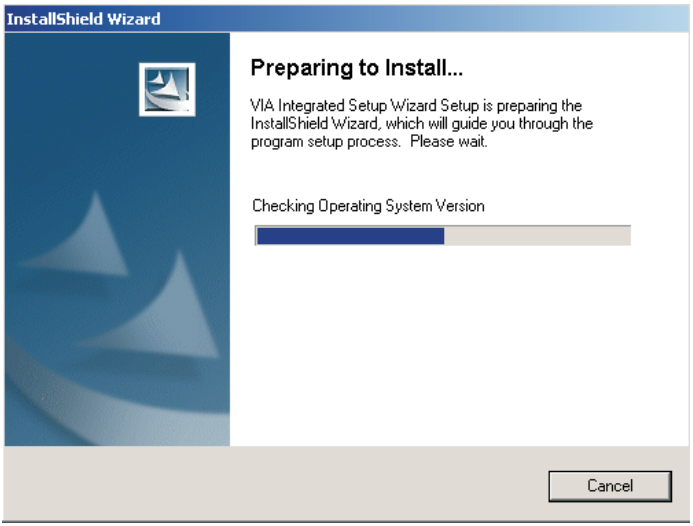
4. Reboot the system for the driver to take effect.

The LAN driver for Windows NT® 4.0 does not support "Autorun". Once the system has detected the fast ethernet controller, it will prompt you to install the driver for Windows NT® 4.0. The driver is in the "LANDRV" root directory of the CD. Please refer to README for the exact location of the drivers.

4.2.6 SATA Drivers

To install, please follow the steps below.

1. On the left side of the autorun screen, click the "TOOLS" icon.
2. Click "SATA Drivers" on the main screen. The screen below will appear.

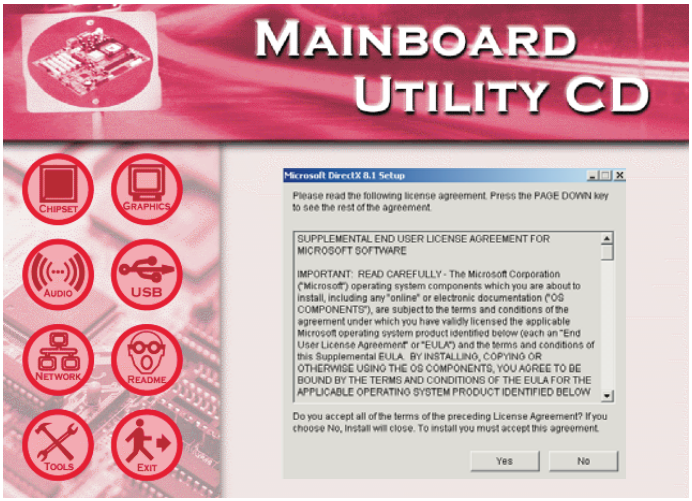

InstallShield Wizard
Preparing to Install...
VIA Integrated Setup Wizard Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.
Checking Operating System Version
Cancel

3. Follow the prompts on the screen to complete installation.
4. Restart the system.

4.2.7 Microsoft DirectX 8.1

To install, please follow the steps below.

1. On the left side of the autorun screen, click the "TOOLS" icon.
2. Click "Microsoft DirectX 8.1" on the main screen. The screen below will appear.


MAINBOARD
UTILITY CD
CHIPSET
GRAPHICS
AUDIO
USB
NETWORK
README
TOOLS
EXIT
Microsoft DirectX 8.1 Setup
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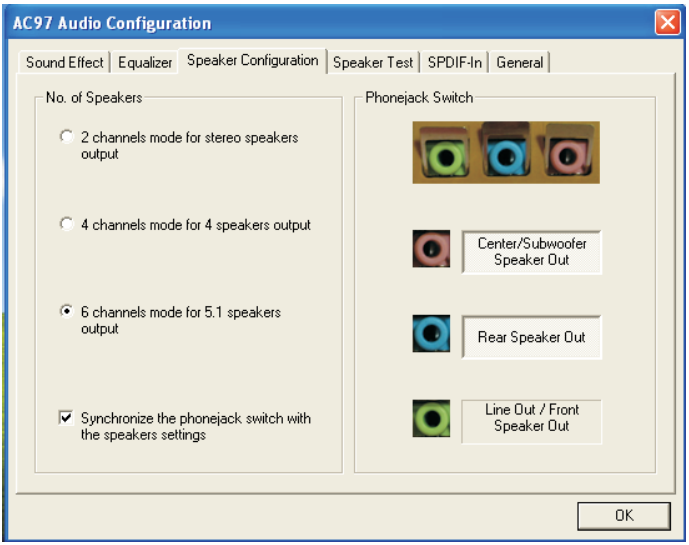
Yes
No

3. Click "Yes" to continue.
4. Follow the prompts on the screen to complete installation.
5. Restart the system.

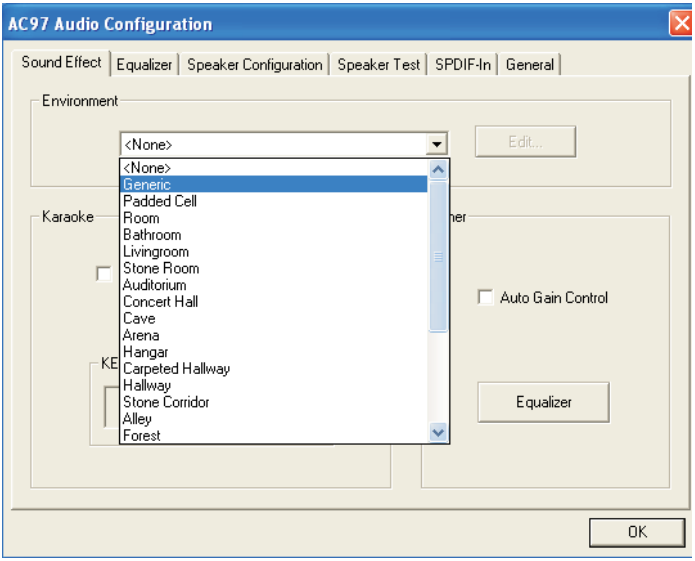
4.3 6-Channel Audio Output via Software

The 6-channel audio output function can be supported by using the audio software utility. Please follow the steps below.

1. Insert the provided CD into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear.
2. Install the audio driver. Refer to the "Realtek Audio Drivers" section in this chapter.
3. After installing the audio driver, the "SoundEffect" icon will appear on the taskbar.
4. Click the "SoundEffect" icon. The "AC97 Audio Configuration" screen will appear.
5. Click the "Speaker Configuration" tab, then select "6 channels mode for 5.1 speakers output".



6. Click the "Sound Effect" tab, then under "Environment", select the sound effect you want. You must select one to create 6-channel audio output.



Note:

With the 6-channel mode supported using software, both the line-in and mic-jacks at the rear panel will instead function as line-out. Therefore you can connect your speakers to these jacks (line-out, line-in and mic-in) for 6-channel audio output. Under such circumstance, line-in will not be supported. Mic-in on the other hand is supported by using the Front Audio connector on the system board.

4.4 Installation Notes

1. "Autorun" ONLY supports the Windows® 98, Windows® 98 SE, Windows® ME, Windows® 2000, Windows NT® 4.0 and Windows® XP operating systems. If after inserting the CD, "Autorun" did not automatically start (which is, the Main Board Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".

2. All steps or procedures to install software drivers are subject to change without notice as the softwares are occassionally updated. Please go to DFI's web site at "http://www.dfi.com/support1/download2.asp" for the latest version of the drivers or software applications.

Appendix A - Using the Suspend to RAM Function

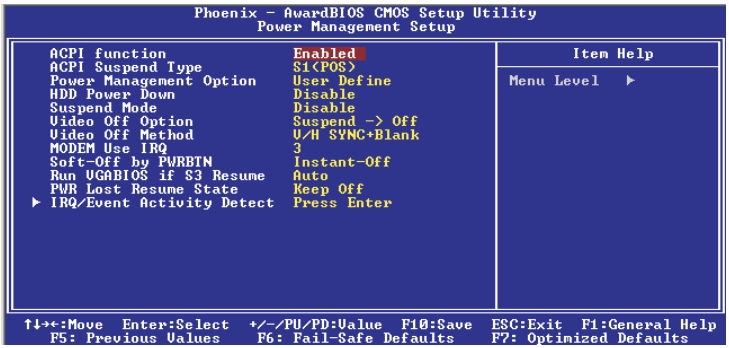
A.1 Using the Suspend to RAM Function

If you are using the Windows® 98 operating system, please follow the steps below.

1. Select "Power Management Setup" in the main menu screen and press <Enter>.

2. In the "ACPI Function" field, select "Enabled".

3. In the "ACPI Suspend Type" field, select "S3(STR)".


Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
ACPI function Enabled
ACPI Suspend Type S1(POS)
Power Management Option User Define
HDD Power Down Disable
Suspend Mode Disable
Video Off Option Suspend -> Off
Video Off Method V/H SYNC+Blank
MODEM Use IRQ 3
Soft-Off by PWRBTN Instant-Off
Run VGABIOS if S3 Resume Auto
PWR Lost Resume State Keep Off
IRQ/Event Activity Detect Press Enter
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

4. Press <Esc> to return to the main menu.

5. Select "Save & Exit Setup" and press <Enter>. Type <Y> and press <Enter>.

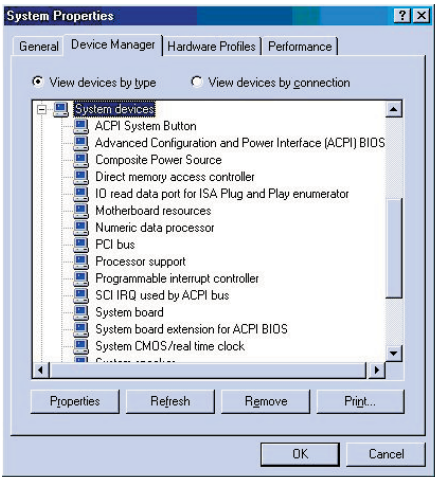
6. Install Windows® 98 by typing the following parameter. This is to ensure that the ACPI function is supported.

   [drive]:>setup /p j

   If you have previously installed Windows® 98, you need to upgrade the system in order to support ACPI. Please contact Microsoft for upgrade information.

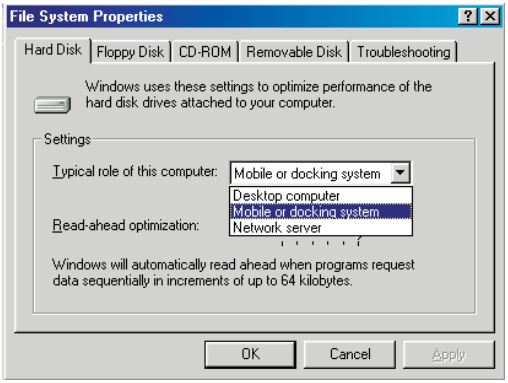
7. Boot Windows® 98. In the Windows® 98 desktop, click the Start button. Move the cursor to Settings, then click Control Panel.

   To check whether ACPI was properly installed, double-click the System icon. In the System Properties dialog box, click the "Device Manager" tab. In "View devices by type", click "System devices".



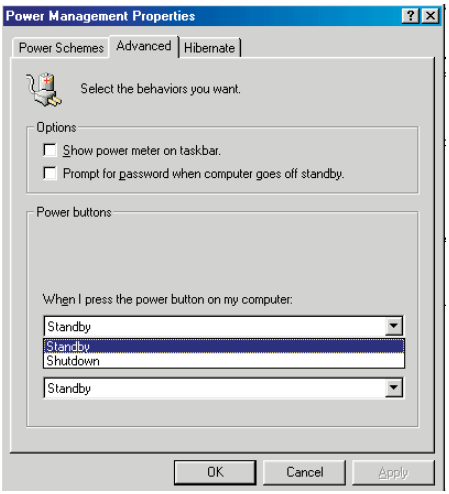
8. Double-click the System icon. In the System Properties dialog box, click the Performance tab.

9. Click File System. In the "Typical role of this computer" field, select "Mobile or docking system". Click Apply, then click OK. Restart the computer.



10. Repeat step 7 to open the Control Panel dialog box. Double-click the Power Management icon.

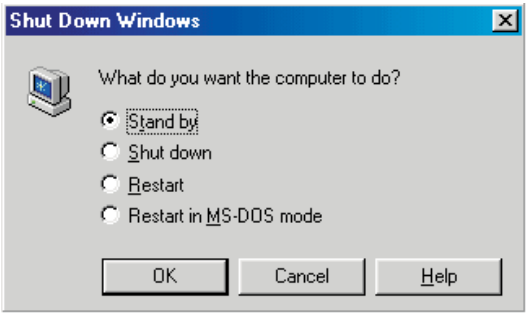
11. Click the Advanced tab. In the "When I press the power button on my computer" field, select "Standby".



12. After completing the steps above and you want to power-off the computer, you do not need to go through the process of closing files, applications and operating system. You can power-off the computer at once by pressing the power button or selecting "Standby" when you shut down Windows® 98.

    To power-on the computer, just press the power button. The operating session where you left off when you power-off the computer will resume in not more than 8 seconds.

    If you have changed the color or resolution (in the Display Properties dialog box), do not apply the settings without re-starting. You must restart the computer.



Important:
If you are unable to use the Suspend to RAM function (after performing the steps above in Windows® 98 or when you are in Windows® 2000/ME/XP), please check whether your add-in cards or devices support this function. If this function is not supported, you need to download the appropriate driver from their respective website.

Appendix B - System Error Message

When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message, PRESS F1 TO CONTINUE, CTRL-ALT-ESC or DEL TO ENTER SETUP, will be shown in the information box at the bottom. Enter Setup to correct the error.

B.1 POST Beep

There are two kinds of beep codes in the BIOS. One code indicates that a video error has occured and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by three short beeps. The other code indicates that a DRAM error has occured. This beep code consists of a single long beep.

B.2 Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list indicates the error messages for all Awards BIOSes:

CMOS BATTERY HAS FAILED

The CMOS battery is no longer functional. It should be replaced.

Caution:

Danger of explosion if battery incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the battery manufacturer's instructions.

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISPLAY SWITCH IS SET INCORRECTLY

The display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting

than indicated in Setup. Determine which setting is correct, either turn off the system and change the jumper or enter Setup and change the VIDEO selection.

FLOPPY DISK(S) fail (80)
Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40)
Floppy type mismatch.

Hard Disk(s) fail (80)
HDD reset failed.

Hard Disk(s) fail (40)
HDD controller diagnostics failed.

Hard Disk(s) fail (20)
HDD initialization error.

Hard Disk(s) fail (10)
Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)
Sector Verify failed.

Keyboard is locked out - Unlock the key
The BIOS detects that the keyboard is locked. Keyboard controller is pulled low.

Keyboard error or no keyboard present
Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop
System will repeat POST procedure infinitely while the keyboard controller is pull low. This is also used for the M/B burn in test at the factory.

BIOS ROM checksum error - System halted
The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail
The BIOS reports memory test fail if the memory has error(s).

Appendix C - Troubleshooting

C.1 Troubleshooting Checklist

This chapter of the manual is designed to help you with problems that you may encounter with your personal computer. To efficiently troubleshoot your system, treat each problem individually. This is to ensure an accurate diagnosis of the problem in case a problem has multiple causes.

Some of the most common things to check when you encounter problems while using your system are listed below.

1. The power switch of each peripheral device is turned on.
2. All cables and power cords are tightly connected.
3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.
4. The monitor is turned on.
5. The display's brightness and contrast controls are adjusted properly.
6. All add-in boards in the expansion slots are seated securely.
7. Any add-in board you have installed is designed for your system and is set up correctly.

Monitor/Display

If the display screen remains dark after the system is turned on:

1. Make sure that the monitor's power switch is on.
2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.
3. Check that the video input cable is properly attached to the monitor and the system's display adapter.
4. Adjust the brightness of the display by turning the monitor's brightness control knob.

The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.
2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.
3. Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

1. If the monitor is close to another monitor, the adjacent monitor may need to be turned off. Fluorescent lights adjacent to the monitor may also cause screen wavering.

Power Supply

When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.
2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.
3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Floppy Drive

The computer cannot access the floppy drive.

1. The floppy diskette may not be formatted. Format the diskette and try again.
2. The diskette may be write-protected. Use a diskette that is not write-protected.
3. You may be writing to the wrong drive. Check the path statement to make sure you are writing to the targeted drive.
4. There is not enough space left on the diskette. Use another diskette with adequate storage space.

Hard Drive

Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.
2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

If your hard drive takes an excessively long period of time to format, it is likely a cable connection problem. However, if your hard drive has a large capacity, it will take a longer time to format.

Parallel Port

The parallel printer doesn't respond when you try to print.

1. Make sure that your printer is turned on and that the printer is on-line.
2. Make sure your software is configured for the right type of printer attached.
3. Verify that the onboard LPT port's I/O address and IRQ settings are configured correctly.
4. Verify that the attached device works by attaching it to a parallel port that is working and configured correctly. If it works, the printer can be assumed to be in good condition. If the printer remains inoperative, replace the printer cable and try again.

Serial Port

The serial device (modem, printer) doesn't output anything or is outputting garbled characters.

1. Make sure that the serial device's power is turned on and that the device is on-line.
2. Verify that the device is plugged into the correct serial port on the rear of the computer.

3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.
4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

1. Make sure the keyboard is properly connected.
2. Make sure there are no objects resting on the keyboard and that no keys are pressed during the booting process.

System Board

1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.
2. Check the jumper settings to ensure that the jumpers are properly set.
3. Verify that all memory modules are seated securely into the memory sockets.
4. Make sure the memory modules are in the correct locations.
5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.
6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.